GENERAL LIBRARY
APR - 8 1919
UNIV. OF MICH.

The

British Medical Journal

The Journal of the British Medical Association.

WITH SUPPLEMENT.

No. 3036. SATURDAY, MARCH 8, 1919. **Price 1/-**

OXFORD MEDICAL PUBLICATIONS.

JUST PUBLISHED.

THE ANATOMY OF THE PERIPHERAL NERVES.

By the late Lieut.-Colonel A. M. PATERSON, R.A.M.C., Assistant Inspector of Special Military Surgical Hospitals; Professor of Anatomy, University of Liverpool. Demy 8vo. Cloth. Fully Illustrated. Price 12/6 net.

THE FORMS OF ALCOHOLISM AND THEIR TREATMENT.

By HUGH WINGFIELD, M.A., M.D., B.C.Cantab., Consulting Physician to the Royal Hants County Hospital; ex-President of the Physcho-Medical Society. Crown 8vo. Cloth. Price 5/- net.

HENRY FROWDE AND HODDER & STOUGHTON, Oxford Press Warehouse, Falcon Sq., London, E.C.1.

By O. LEYTON, M.D., D.Sc., F.R.C.P.
Physician to the London Hospital,

THE MODERN (ALLEN) TREATMENT OF DIABETES MELLITUS.

SECOND EDITION. NOW READY. Price 4/- net.
ADLARD & SON & WEST NEWMAN, LTD., Bartholomew Close, London, E.C.1.

SECOND EDITION. Pp. xii.+266. With 6 Plates and 93 other Illustrations. Price 6/- net.

CARREL AND DEHELLY'S TREATMENT OF INFECTED WOUNDS.

Translated by Capt. HERBERT CHILD, R.A.M.C. Introd. by Sir ANTHONY BOWLBY, K.C.M.G.
BAILLIÉRE, TINDALL & COX, 8, Henrietta Street, Covent Garden, London, W.C.2.

NOW READY. Fourth Edition. Pp. viii.+420. Price, Cloth, 4/6 net.

AIDS TO SURGERY.

By JOSEPH CUNNING, M.B., B.S., F.R.C.S., Surgeon to Royal Free Hospital, and CECIL A. JOLL, M.S.Lond., F.R.C.S.Eng.

BAILLIÈRE, TINDALL & COX, 8, Henrietta Street, Covent Garden, London, W.C. 2.

Price 2s. 6d. net (postage 3d.).
DIAGNOSIS AND TREATMENT IN CASES OF

OTITIS MEDIA

(MASTOID DISEASE).

Saving the Discharing Ear with Perforated Drumhead.

By CHARLES J. HEATH, F.R.C.S.Eng., *Consulting Aurist Metropolitan Asylums Board, Late Surgeon Throat Hospital, Golden Sq., London.*

"We have no hesitation in describing Mr. Heath's paper as epoch-making."—*St. Bartholomew's Hospital Journal.*

London: BAILLIERE, TINDALL & COX, 8, Henrietta Street, Covent Garden, W.C.2.

REGISTERED AS A NEWSPAPER.]

NEW (3RD) EDITION—JUST ISSUED

DeLEE'S OBSTETRICS

HIRST'S MANUAL OF GYNÆCOLOGY

JUST ISSUED

See SAUNDERS' Advertisement on Page 3.

By C. HAMILTON WHITEFORD, M.R.C.S., L.R.C.P.

ACUTE APPENDICITIS.

(Practical Points from a twenty-five years experience).
Price 4s. net.
Also,

AN OPERATING THEATRE IN PRIVATE PRACTICE.

(With Illustrated Supplement).
Price 3s. 6d. net.
London: HARRISON & SONS, 44-47, St. Martin's Lane, W.C. 2.

By C. MANSELL MOULLIN,
M.D.Oxon., F.R.C.S., Consulting Surgeon to the London Hospital.

ENLARGEMENT OF THE PROSTATE.

Fourth Edition. Price 6s.

THE BIOLOGY OF TUMOURS,
including the Bradshaw Lectures.
New and Revised Edition. Price 2s. 6d. net.
London: H.K. LEWIS & Co. Ltd., 136, Gower St. W.C.1

BY

SIR PETER FREYER, K.C.B.

Enlargement of the Prostate.
A Work based on 1,500 Cases of the Operation.
(FOURTH EDITION in preparation.)
Surgical Diseases of the Urinary Organs.
(SECOND EDITION in preparation.)
BAILLIERE, TINDALL & COX, 8, Henrietta St., Covent Garden, London, W.C. 2.

[COPYRIGHT.]

By FRANK KIDD, F.R.C.S.,
Surgeon to the London Hospital, and Surgeon-in-Charge of Genito-Urinary Department, London Hospital.

COMMON DISEASES OF THE MALE URETHRA.

Being a Course of Lectures delivered at the London Hospital, designed to assist those who may be starting Genito-Urinary Clinics.
With numerous Illustrations and Appendices. 5s. 6d. net.

"The author is always thorough and practical, and those who read this book will be astonished at the wealth of really valuable suggestions which it contains."—*The Prescriber.*

By the same Author.

URINARY SURGERY: A Review.
7s. 6d. net.
LONGMANS, GREEN & CO., 39, Paternoster Row, London, E.C. 4.

Price 1/- net (post free 1/2). NOW READY.

HINTS FOR R.A.M.C. OFFICERS.

By R.A.M.C. CORPS.

"A useful summary of the regulations and routine of the military medical officer.....containing the information which a newly-appointed officer is likely to need."—*Lancet.*
WILLIAM BRYCE, Edinburgh. SIMPKIN, MARSHALL & Co., London.

Price 2/- net (post free 2/2). JUST READY.

POCKET NOTES ON NERVES.

Compiled and arranged by T. MUIRHEAD MARTIN, M.D., C.M.Edin.

In this little book we have the salient features of nervous condition clearly and concisely defined, and the differential diagnosis set forth in an excellent set of tables.
Edinburgh: WILLIAM BRYCE. London: SIMPKIN, MARSHALL & Co.

Pp. viii + 350, With 102 Illustrations.
Price 7s. 6d. net.

DISEASES OF THE RECTUM AND ANUS

BY

P. LOCKHART MUMMERY, F.R.C.S.

BAILLIÈRE, TINDALL & COX 8, Henrietta Street, Covent Garden, W.C. 2.

JUST PUBLISHED. SECOND EDITION.

HYPNOTISM AND TREATMENT BY SUGGESTION.

By Dr. ALBERT E. DAVIS, Hon. Physician to the Liverpool Psycho-Therapeutic Clinic.
Of all Booksellers. Price 3/6 net. Post free 3/9.
"A fascinating book."—*Daily News.*
"We hope the book will have a large circulation, and we wish it all success."—*The Medical Times.*
SIMPKIN, MARSHALL & Co., Ltd.: London.

[ISSUED WEEKLY

KINECTINE

NON-TOXIC.
EASILY TAKEN.
WELL-TOLERATED.

Indicated in:—

INFLUENZA,

Hay Fever, Coryza, Catarrh, Malaria, &c.

"G———.
DEAR SIRS, Lancs, 11th May, 1918.
For the first time for 18 years I have escaped my annual attack of Influenza, thanks to Kinectine. Please send me further supply. I enclose cheque 30s."—Yours faithfully,
———, M.D."

In Tubes of 10 Tablets.

AMBRINE

(Dr. Barthe de Sandfort's)
IS THE
IDEAL
HYPERTHERMAL
TREATMENT
OF
BURNS,
VARICOSE ULCERS, SCALDS,
CHILBLAINS, &c.

"The valuable physical properties of Ambrine are almost ideal."
Vide Surgery, Gynæcology and Obstetrics, April, 1918.

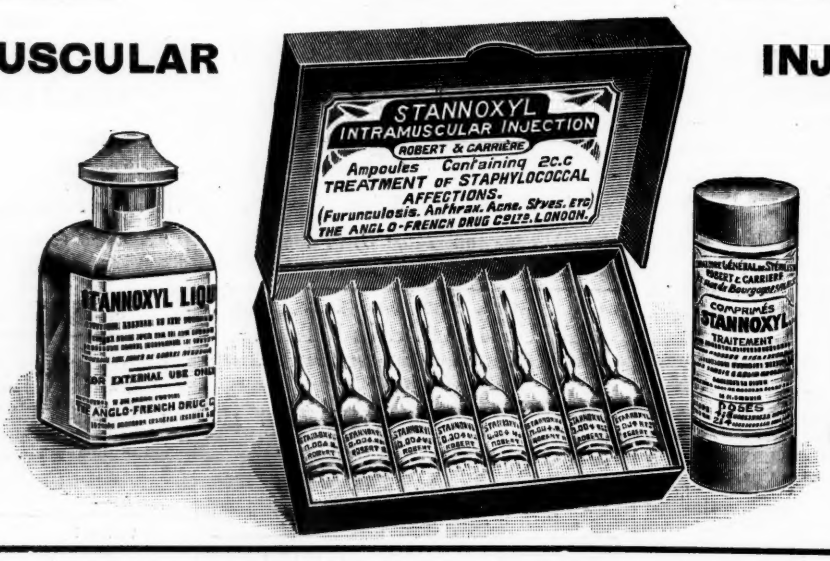
Ampoules each containing 2 c.c.

PURE OXIDE OF TIN AND TIN METAL
STANNOXYL
Treatment of Staphylococcal Affections.

Ampoules each containing 2 c.c.

INTRAMUSCULAR INJECTION.

STANNOXYL LIQUID FOR EXTERNAL APPLICATION.



STANNOXYL TABLETS FOR INTERNAL ADMINISTRATION.

Tested and Approved in accordance with L.G.B. requirements.

INTRAVENOUS.

GALYL

IS THE SAFEST OF ALL ARSENICAL COMPOUNDS IN

SYPHILIS

INTRAMUSCULAR.

(*Vide* Presidential Address, British Pharmaceutical Congress, 10th July, 1918.)

LITERATURE, CLINICAL REPORTS and PRICE LISTS on REQUEST.

The ANGLO-FRENCH DRUG Co., Ltd., Gamage Building, Holborn, London, E.C. 1.
Telephone: HOLBORN 1311. Telegrams: "AMPSALVAS, LONDON."
WEST END DEPOT: **MODERN PHARMACALS, 48, Mortimer Street, W. 1.** Telephone: MUSEUM 564.
NEW YORK: **1270 BROADWAY.** MONTREAL: **DANDURAND BUILDING.** PARIS: **5, RUE CLAUZEL.**
JAMAICA:—**Mr. A. NOEL CROSSWELL, 8—12, King Street, Kingston.**

Observations
ON
HYPERGLYCAEMIA AND GLYCOSURIA.*

BY

H. J. HAMBURGER, D.Sc., M.D., LL.D., F.R.S.,

PROFESSOR OF PHYSIOLOGY IN THE UNIVERSITY OF GRONINGEN, HOLLAND.

I. INTRODUCTION.

SINCE the time of Claude Bernard it has been known that sugar is never absent from the blood, and that it rarely if ever appears in the urine of normal individuals. What is the cause of this, and why does sugar appear in the urine when its presence in the blood exceeds a certain limit? These are questions which should be of interest not only to the physiologist but also and especially to the clinic.

Several possibilities that would explain the absence of sugar in the normal urine have been considered. In the first place, that, in a normal individual, glucose passes through the glomerular membrane and is further burnt up in the kidney. This supposition seems to me to be very improbable. It is true that in the kidneys the oxidation is very powerful, but, on the other hand, if the question is viewed in the light of efficiency, it is difficult to bring oneself to agree with this conception. For is not sugar the nearest source for muscular work?

In the second place, it may be imagined that the glucose, after having made its way through the glomerular membrane into the intercapsular space, is there resorbed by the surrounding blood vessels. Neither is this suggestion acceptable, for here we would have to do with a waste of energy.

Thirdly, there may be the possibility that the sugar cannot pass through the glomerular epithelium, the reason being that it is present in the blood plasma as a colloidal compound—a compound of glucose, which is of itself not a colloid—with a substance which occurs in the blood plasma. If the quantity of glucose in the plasma has become so great that there is an insufficiency of the other substance to bind it all, free glucose will circulate with the blood plasma, and so pass through the glomerular epithelium into the urine; the result is glycosuria. Especially have Lépine and his co-workers defended this theory very ably. The compounded sugar he called *sucre virtuel*, and the free sugar *sucre actuel*.

In the meantime difficulties have been raised in connexion with the retention of the sugar in the colloidal state. Asher and Rosenfeld, and later, by an improved method, Michaelis and Rona, showed that when serum containing glucose is brought into a tube of parchment paper the sugar diffuses through it. This would not have taken place if the sugar had been in the form of a colloidal compound. From this they concluded that sugar does not occur in the blood as a colloid.

John Abel comes to the same conclusion with his so-called vividiffusion experiments. In his researches a connexion was brought about between an artery and its accompanying vein by means of a collodion tube, which he surrounded with a wider glass tube containing an isotonic salt solution. It appeared that through such a collodion membrane sugar diffused. These experiments have created a deep impression, and it appeared as if by them there had come a dead stop.

Still it seemed to us that the presence of a colloidal compound in the blood plasma had not been absolutely disproved by these experiments, because there is always the possibility that the writers erroneously took that which passed through their membranes for simple sugar, although it gave the tests for sugar. Moreover, it is not admissible to consider the permeability of collodion and parchment, as such, as being the same as that of the glomerular epithelium. Has not Bechhold taught us that some colloidal substances are let through and others not by the same membrane, and vice versa, that the same colloidal substance can pass through a particular membrane and not through another? We recall the researches of W. Brown published in the *Biochemical Journal*, 9 (1915), on the different permeability of collodion membranes even to different inorganic salts. We could therefore not accept it as being definitely proved that sugar occurs in the blood in an absolutely free state. Consequently we considered it desirable to investigate systematically whether, notwithstanding the results of the diffusion experiments, the theory of a colloidal sugar compound was not after all correct.

Does the Kidney Allow the Passage of Free Glucose?

With this end in view, we decided in the first place to answer the fundamental question, which had up to this not yet been considered: whether the kidney allowed free glucose to pass through or not.

Experiments were made with the isolated kidney. To ensure that the perfusion liquid contained exclusively free sugar, Ringer's solution containing sugar was taken. If it proved that the concentration of sugar in the so-formed artificial urine was the same as that of the original liquid, the conclusion could be drawn that the kidney is permeable to glucose. After this it could be determined whether the addition of serum would cause a retention of sugar. Should this be the case it would be practically certain that there is present in the serum a substance which binds the sugar and brings it into a form that the glomerular epithelium does not allow to pass through, and eventually it could be investigated what this substance in the serum is.

With these investigations Dr. Brinkman and I have kept ourselves busy for more than two years. Through them we have come to the most unexpected results, which now and then led us on to sidepaths which, considered from a general point of view, were important in themselves.

II. SOME TECHNICAL DETAILS.

Frogs were exclusively used for the experiments. The conditions for experiments on these animals are much simpler than for warm-blooded animals; later, when circumstances will allow a normal use of gas, we shall be able to make experiments on warm-blooded animals also. Big masculine specimens of *Rana temporaria* were used. After the head has been severed with a pair of scissors the spinal marrow is destroyed by means of a long needle, and all the organs, except the kidneys, testes, and bladder, removed. A fine injection needle is then inserted in the aorta communis, and a fine glass cannula with a bulb into the ureters. This bulb serves as a receiver for the artificial urine, but is not necessary. The liquid which passes through the blood vessels must contain a large amount of oxygen. This bubbles all the while through the perfusion liquid, which stands at a level of 60 cm. above the body of the frog. In this way approximately 150 c.cm. flow through the kidneys per hour.

The "urine" is to be considered as a product of the glomeruli.

To grasp this a knowledge of the way the blood vessels run in the frog is needed. In contrast to what we find in warm-blooded animals, the arteria renalis supplies the glomeruli and to a very small extent the tubuli, while the latter get their blood supply almost wholly from the vena porta renalis, which carries off the greater part of the blood from the hindquarters. It now appears that if a liquid is made to flow through this vessel under a pressure of 60 cm. not a drop of urine is excreted. Excretion takes place only under a much higher pressure, and even then very slowly. It is therefore clear that in our experiments, where the liquid is made to flow through the arteria renalis, the urine can be derived from the glomeruli.

The fact that it is possible to separate the products of the glomeruli and tubes so well from each other makes the frog an admirable object for the study of the formation of urine.

The perfusion liquid consisted, as has been said, of Ringer's solution, to which had been added a known quantity of glucose. Great care must be bestowed upon the preparation of the solution. Every trace of carbon dioxide must be removed from the water. The flask in which it is kept must be waxed on the inside to prevent the glass from spoiling it. Care was further taken that no carbon dioxide was carried along with the liquid as it flowed from the flask. None of these precautions may be

* This article is a summary of a series of researches that have been conducted during the course of the last three years in the physiological laboratory here in co-operation with Dr. R. Brinkman, assistant in the laboratory. A considerable part of it has already been published *in extenso* (see Bibliography), but in periodicals which are not easily accessible to the majority of readers of this JOURNAL. Part V, which treats of the toleration of the kidneys for sugar, and Part VI, of the behaviour of the kidneys towards some isomeric sugars, have not hitherto been published.

neglected. Lack of knowledge in this connexion has led to repeated failures of experiments. The glucose in the perfusion liquid and the product formed from it by the kidneys was determined by the excellent micro-method of Bang (1916). This method ensures an accurate determination of the amount of glucose present in 1 c.cm. of a liquid up to 0.006 per cent.

III. The Permeability of the Frog's Kidney to Free Glucose.

The Significance of the Concentration of Calcium and Potassium.

As has been said before, the fundamental question, which had not yet been inquired into, had to be answered—namely, whether the glucose concentration of the urine would be the same as that of a Ringer's solution containing sugar which is passed through the kidney, and from which it is formed. The Ringer's solution had the usual composition: NaCl 0.7 per cent., $NaHCO_3$ 0.02 per cent., KCl 0.01 per cent., $CaCl_2$ 0.0075 per cent. Repeated experiments showed that the concentration of glucose in both liquids was absolutely the same, and therefore that the kidney was perfectly permeable to free glucose. It was now expected, in accordance with the idea entertained by Lépine about a colloidal sugar compound, that, by the addition of serum to the Ringer-glucose mixture, glucose would be retained, and that there would be less sugar present in the urine than in the original perfusion liquid. This, in fact, proved to be the case. Then there suddenly followed a surprise. It appeared that in a mixture of serum with a sixfold quantity of Ringer's solution a considerable quantity of sugar was retained, while with an eightfold quantity none.* This astonishing observation had to be explained, and led to a circumstantial investigation, which finally exhausted the whole supply of Ringer's solution. A fresh solution had to be made therefore. This brought us face to face with another surprise: for when, for safety's sake, the experiment was started from the beginning again with this new solution to which no serum had yet been added—this being reserved for a later stage—it was found, in contradiction to the results obtained previously, that now glucose was retained. We thought that very likely something was altered in the composition of the Ringer's solution—perhaps the amount of calcium. One is so apt to make a mistake between the anhydrous $CaCl_2$ and that still containing the water of crystallization. Thus only the amount of $CaCl_2$ had been altered in the Ringer's solution. Systematic investigations now proved that, when 0.0075 per cent. $CaCl_2$ was used, the "urine" contained 0.07 per cent. sugar; consequently that of the 0.1 per cent. glucose in the solution 0.03 per cent. was retained, while when 0.005 per cent. and 0.010 per cent. $CaCl_2$ was used—that is, less or more than 0.0075 per cent.—the glomerular epithelium allowed all the sugar to pass through.

It appeared consequently that the permeability was to a large extent dependent upon the concentration of $CaCl_2$ in the perfusion liquid.

This influence of calcium upon the permeability of cells need not surprise us when we recall the experiments made by Chiari in connexion with artificial conjunctivitis. By dropping a solution of $CaCl_2$ into the eye, inflammation is brought to a standstill, and after a minimum of time ceases completely. Again, the haemolysis of red blood corpuscles is prevented by calcium. Calcium has, if it be permitted to call it so, a "densifying" effect on the surface of the cell.

After these systematic investigations in connexion with the influence of calcium, similar experiments were made with potassium; only the concentration of KCl in the Ringer's solution was changed. It then appeared that a certain concentration of potassium chloride always answers to a fixed concentration of calcium chloride, and vice versa. If the one is changed then the other has to be changed accordingly. They balance each other.

This does not sound inconceivable when it is remembered that potassium has a weakening effect even on gelatin. As has been said, calcium acts astringently. Especially in the case of the frog does potassium act strikingly. In a series of experiments we saw the red blood corpuscles swell up in a solution of KCl which was isotonic with serum. This swelling is totally absent in an isotonic solution of NaCl. The kidney also shows a considerable swelling in an isotonic KCl solution.

Radium and Uranium and Mesothorium Rays.

Let it be remarked, by the way, that, perfectly in accordance with the researches of Zwaardemaker and his co-workers in connexion with the heart, here also the radio-active uranium and radium could be substituted for potassium, and that the quantities of uranium and radium are not regulated by the atomic weights of these elements—that is, are not equivalent to each other in a strict chemical sense, but are regulated by the radio-activity of these substances, and this radio-activity is quite independent of the atomic weight. Since radium is radio-active to a great degree and potassium much less, and uranium takes an intermediate position between these two, it is not surprising that an exceptionally small quantity of radium can be substituted for potassium, while the amount of uranium again takes an intermediate place. For retaining the maximum amount of sugar—namely, 0.03 per cent.—there was necessary a solution of uranium nitrate of 0.00015 per cent., and one of radium bromide of 0.0000005 per cent.; in the presence of more or less of both salts in the Ringer's solution the retentive power for glucose was *nil*. The same was observed with regard to the concentration of KCl. If with a concentration of 0.0075 per cent. $CaCl_2$ that of KCl was 0.01 per cent., then the urine contained 0.03 per cent. less glucose than the perfusion liquid. If a stronger or weaker concentration than 0.01 per cent. was used, then the power of retention was wholly, or almost wholly, lacking.

A simple subjection to mesothorium rays serves the same purpose as KCl. A subjection to these rays brought about also a considerable swelling even of the kidney.

The "balance" idea makes it clear that by application of uranium the so-called uranium glycosuria can be brought about (Pollack), while on the other hand Hughes, and also West, administered with success small quantities of uranium in cases of diabetes.[1]

IV. The Concentration of $NaHCO_3$ in the Perfusion Liquid.

So far experiments had taught that from the liquid considered the most suitable perfusion liquid, and containing 0.1 per cent. glucose, a "urine" containing at least 0.07 per cent. glucose was formed, and that at the most 0.03 per cent. glucose could be retained. To our surprise this retention became still smaller when the concentration of glucose in the solution was weaker. For there was reason to expect if a solution containing 0.03 per cent. sugar was passed through the kidneys the urine formed would be free from glucose. This, however, was not the case. We could not obtain a glomerular filtrate that was free from sugar.

Seeing that the normal concentration of glucose in the frog's blood is from 0.03 to 0.05 per cent. and the urine of the frog is free from sugar, we put to ourselves the question, whether the Ringer's solution hitherto used was indeed the most physiological. We endeavoured therefore to improve the solution. The influence of $CaCl_2$ and KCl had already been studied. The obvious course was now to proceed to study the influence of the concentration of the $NaHCO_3$.

Since the time of S. Ringer it has been generally accepted that the $NaHCO_3$ is indispensable for perfusion. Also we had found in the experiments in question that it was necessary for the perfusion liquid. Not a trace of glucose was retained in the absence of $NaHCO_3$. It is known that amongst others the function of the $NaHCO_3$ is to preserve a certain alkalinity of the body fluid, which would otherwise, in consequence of the constant acid formation, become acid. The sodium phosphate and sodium protein also take a part in this. In this connexion these substances are consequently called tampons, buffers, regulators or moderators. Most investigators use 0.02 per cent. $NaHCO_3$, and we have done the same. It has appeared to us, however, that this concentration is too weak for perfusion through the frog's kidney, for if to the solution made up of NaCl 0.6 per cent., $NaHCO_3$ 0.02 per cent., KCl 0.01 per cent., $CaCl_2$ 0.0075 per cent., a little neutral red, which is known to be harmless to life, is added, then the alkaline perfusion liquid is orange-yellow, but the "urine" becomes red, proving that it has become acid.

* Compare for the explanation of this especially Section IV.

What now is the case with the reaction of the normal urine of the frog? If a little of this is pressed out of the bladder of a normal animal, it shows a weak alkaline reaction with neutral red. From this it appears that the buffer concentration of 0.02 per cent. was too weak to keep the reaction a weak alkaline one, as is the case in the normal urine of the frog.

But, what is still more important, as the urine becomes acid the retentive powers of the kidneys for sugar grow considerably weaker and finally disappear altogether.

Increased Concentration of $NaHCO_3$.

The best thing, therefore, to do was to make the concentration of the $NaHCO_3$ gradually stronger. By degrees it was brought up to 0.09 per cent. The urine now did not become red, but remained colourless, because the neutral red was held back by the glomerular epithelium. Still it proved to be alkaline, for the addition of a little neutral red to the excreted urine brought about a faint orange colouring. Moreover, the retention of glucose was raised to more than 0.06 per cent., but for this it was necessary to increase the concentration of $CaCl_2$ in the perfusion liquid from 0.0075 per cent. to almost double that percentage. This can be understood, because the $NaHCO_3$ weakens the concentration of the Ca ions of the $CaCl_2$, and it is on these that it greatly depends.

The question was now: Was the increase of the concentration of $NaHCO_3$ to 0.09 per cent. sufficient?

To investigate this the alkalinity of the frog's serum was determined by the titration method of Snapper with neutral red paper as indicator. It appeared that this corresponded to a $NaHCO_3$ solution of 0.285 per cent. Consequently, a Ringer's solution containing 0.285 per cent. instead of 0.09 per cent. $NaHCO_3$ was prepared. Under these conditions it appeared that often more than 0.08 per cent. glucose, sometimes 0.12 per cent., was retained. But then also the concentration of Ca had to be brought from 0.0075 per cent. to more than double that percentage.* The concentration of NaCl was lowered also because otherwise the Na concentration would have been too strong.

At this stage the question arose whether it would now be possible to obtain a sugar-free urine. According to Bang, the blood of the normal frog contains from 0.03 to 0.05 per cent. glucose. Would, therefore, the kidney be able to hold back all the glucose in a Ringer's solution which held 0.05 per cent. glucose and was rich in $NaHCO_3$? The correspondence between the results of ten experiments showed that this was indeed the case; the urine was perfectly free from sugar. All sugar was held back, even when the Ringer's solution contained 0.08 per cent. glucose.

The glomerular epithelium is thus impermeable to free sugar. It is therefore quite unnecessary to suppose the sugar to be present in the blood serum in the form of a colloidal compound in order to explain the fact that the urine of normal individuals is free from sugar (*sucre virtuel* of Lépine), a compound which as a matter of fact it has never yet been possible to isolate.

V. The Tolerance of the Kidneys to Glucose.

We come now to the second question which we put ourselves at the commencement of this article—namely, Why does sugar appear in the urine when the quantity of sugar in the blood exceeds a certain limit? or, to put it differently, What relation does there exist between hyperglycaemia and glycosuria? If we desire to make this out, we have to take account of the fact that glycosuria does not depend upon the quantity of glucose in the blood as a whole, but only on that fraction of it which occurs in the plasma. One is apt to lose sight of this, and take it for granted that these two quantities are one and the same. Without further thought it is assumed that if the blood contains *a* per cent. glucose, the same is true for the plasma. This is true only when the sugar is distributed equally between plasma and blood corpuscles. As a general rule this is not the case, and certainly not in man.† Should the blood corpuscles contain no sugar at all, and the sugar thus be present exclusively in the plasma then the plasma has to be considered as containing more than *a* per cent. glucose. The concentration of glucose in the plasma could then be determined from the relative volumes of blood corpuscles and blood plasma. Let us consider, for example, that 30 per cent. of the blood consists of blood corpuscles, the remaining 70 per cent. being plasma; then the plasma would contain $(\frac{1}{7}0 \times a)$ per cent. glucose.

In consideration of these facts a large number of experiments have been conducted in connexion with the distribution of sugar in the blood of man, rabbit, and frog. We shall come back to this later. Suffice it to say here that the blood corpuscles in the circulating blood of the frog are quite free from sugar,‡ and that the concentration of glucose in the plasma of the frog varies from 0.045 to 0.075 per cent., and that in the frog's blood as a whole from 0.03 to 0.05 per cent. These last figures correspond to those found by Bang.

In connexion with what has been discussed in the previous paragraph it may be expected that from a Ringer's solution containing 0.045 per cent. glucose a urine which is free from sugar will be obtained, and this proves to be the case. Is it justifiable, then, to call a perfusion solution containing 0.06 per cent. glucose hyperglycaemic? No; because, as has been said already, there are frogs whose plasma contains 0.075 per cent. glucose. With regard to this there are considerable individual differences, and we have found that the season of the year also has a great influence on the concentration of the sugar in the frog's plasma. What can be said is that a Ringer's solution containing 0.1 per cent. glucose may be considered hyperglycaemic (better, hyperglucoplasmic). It appeared, in fact, that when that concentration of sugar was passed through the kidney a little of it was allowed to pass through with the urine.

The question now arose, How great would the retentive powers of the kidney become if the concentration of the glucose was raised above 0.1 per cent.? Experiments were conducted with solutions containing glucose concentrations of 0.11, 0.12, 0.15, 0.2, 0.25, and 0.3 per cent. respectively. From the results of these experiments it appeared that the stronger the concentration of sugar in the solution the less glucose could be retained. When the perfusion liquid contained 0.3 per cent. glucose, 0.3 per cent. was present in the urine as well; there was no retention of sugar in the least—a perfect glycosuria therefore. A similar result was obtained when the concentration of glucose was 0.25 per cent. With a concentration of 0.2 per cent. a very small quantity of glucose was retained—namely, about 0.02 per cent.

In general it appeared that the more hyperglycaemic the perfusion solution was, the less sugar was retained. If a perfusion solution containing 0.07 per cent. glucose was used, then in the majority of cases all the sugar was retained. I say in the majority of cases, not always, and that can be understood—first, because for some frogs a solution containing 0.07 glucose means a fairly strong hyperglycaemia; secondly, because the toleration of the kidneys of different frogs for glycosuria is not the same. For example, a frog whose blood contains 0.06 per cent. glucose will form urine free from sugar when a solution containing 0.07 per cent. glucose is passed through it. In the case of another frog under the same conditions sugar will pass into the urine. The toleration for hyperglycaemia is greater in the case of the first frog than in that of the latter.

As was said above, a Ringer's solution containing 0.3 per cent. glucose makes the glomerular epithelium perfectly permeable to sugar. One might say that the epithelium is sickened by it. The fact that a concentration of 0.3 per cent. glucose brings about a very slow formation of urine pleads for this view. We can put to ourselves the question, Is this change which the glomerular epithelium

* This concentration corresponds with the strength of that of the normal frog serum as found by Mr. de Waard by means of a micro-method worked out by himself. The description of this method will still appear in the *Biochemische Zeitschrift*. He found that the Ca concentration varied with the seasons of the year. To this variation must be ascribed the fact that at the commencement of our investigations the results of our experiments on retention were so different.

† In speaking of the concentration of sugar in the human blood this has therefore to be considered. It is customary, as has been remarked, to take for granted that the concentration of glucose in the plasma (serum) on which it mostly depends is equal to that of the blood as a whole. The fact is that neither in the case of man nor rabbit is the sugar equally distributed between blood corpusles and blood serum. This has been proved in our laboratory by numerous experiments made by different methods, and also from calculations and experiments by others.

‡ On defibrination sugar passes from the blood serum to the blood corpuscles (Brinkman).

undergoes of a lasting nature? It appears that when afterwards a Ringer's solution containing more or less the physiological quantity—that is, 0.06 per cent. of glucose—is passed through the kidney, the urine contains sugar for several hours after, and that to the extent of 0.06 per cent. Whether the glomerular epithelium recovers again later we could not make out by our experiments.

We must admit that before these experiments we had a different conception of the origin of glycosuria from hyperglycaemia. We had thought that when the perfusion liquid contained too much glucose the glomerular epithelium would remain impermeable to the sugar, but that the surplus would be excreted vicariously by the tubes. In this case the product from the glomerulus would be quite or nearly free from sugar. From the experiments, however, it appeared that this is not the case, and that, as has been said, in the case of strong hyperglycaemia, the glomerular epithelium allows even all the sugar of the perfusion liquid to pass through.

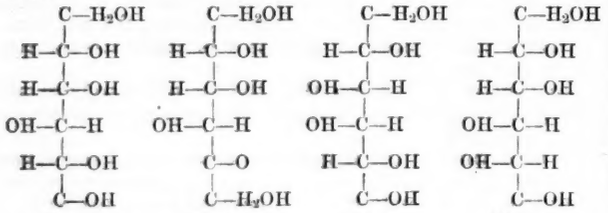
VI. The Behaviour of the Kidneys towards some Isomeric Sugars.

As was explained in part IV, under normal conditions glucose as such is retained by the glomerular membrane. If now we consider the fact that salts such as NaCl, which, like glucose, are also crystalline, pass through it, then arises the question, To what must this peculiar behaviour of glucose be ascribed?

In the first place we might imagine that the molecule of the monosaccharide glucose ($C_6H_{12}O_6$) is so large that that would hinder its passage. We thought that if this notion was correct, then disaccharides, like sucrose, maltose, and lactose, which have a still larger molecule ($C_{12}H_{22}O_{11}$), would certainly be retained as well. The experiments proved, however, that the glomerular epithelium is permeable to the three above-mentioned disaccharides to a great degree. It is even perfectly permeable to lactose; in fact, even raffinose ($C_{18}H_{36}O_{18}$) is allowed to pass through it completely.

If, then, the retention of glucose could not be ascribed to the size of its molecule, there was the probability that a characteristic structure or configuration of the glucose molecule had something to do with it. For this reason some sugars which were either isomeric or stereo-isomeric with glucose were experimented with.

For convenience I give the formulae of a few of these sugars:



And what proved to be the case? That the fructose was allowed to pass through completely, likewise the mannose, while a small quantity of the galactose was retained. The reader will not fail to notice how slight is the difference in the configurations of these four sugars, especially between the glucose and its stereo-isomeres galactose and mannose.

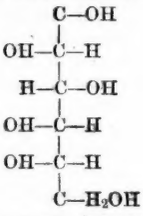
Glucose therefore occupies a very peculiar place amongst the isomeric monosaccharides with regard to the glomerular membrane; or, to express it differently, the glomerular epithelium has a power of separating glucose from the monosaccharides in a way which suggests the relation of sugars to ferments. It is an established fact that a particular ferment can break up a particular sugar and others not. Sugar and ferment fit each other, as Emil Fischer expressed it, like a lock and key. If we apply this representation to our case, we would say that the key (glucose) does not fit the lock (glomerular membrane) and that the other sugars which have so far been experimented with do fit.

It is deserving of attention that these investigations form a new illustration for the law of stereo-isomerism, but here it is not of a chemical, but of a physiological nature—lying, namely, in the domain of permeability.

Recently we have endeavoured to discover which group of the glucose molecule it is that imparts to this substance the peculiarity that causes it to be retained by the glomerular epithelium. With this end in view we have examined several other stereo-isomeric sugars, amongst others several pentoses.

At present we have a number of facts at our disposal, but we have not yet been able to make out to what glucose owes its "efficiency" of being retained by the glomerular epithelium. This property may well be called efficiency, for is it not an established fact that glucose is the most immediate source of muscular energy? It would be exceedingly inefficient if under normal conditions the sugar passed from the blood into the urine.

Be this as it may, we are certainly confronted here by a remarkable phenomenon when we consider that the laevo-rotatory glucose of the formula:



passes completely through the glomerular membrane. I will not dwell further upon these investigations, but make mention of only one fact, which is not without importance from a clinical point of view—namely, that when dextrose and laevulose are dissolved in the perfusion liquid, then the dextrose is again retained by the glomerular membrane, but the laevulose passes through. From this it is evident that the power of retention for dextrose is quantitatively not altered. The two sugars are simply separated from each other as through a filter; what is true for a mixture of dextrose and laevulose also applies to a mixture of glucose and lactose. The lactose passes completely into the urine and the glucose is retained by the glomerular epithelium to the same extent as when there is no lactose present.

VII. Some Further Remarks of a Theoretical-Practical Nature.

In the first place these are concerned with potassium. From the experiments made with weak concentrations of $NaHCO_3$—that is, with 0.02 per cent. (*cf.* parts II and III)—it appeared (I have not mentioned this yet) that the K could be omitted without the solution being affected for the worse. Both in the presence and absence of K, 0.03 per cent. glucose was retained. If, however, K was added, the quantity used had to lie within fixed limits. There had to be a definite relation between Ca and K. The question now was: Could the potassium also be left out of this new physiological perfusion liquid, in which the concentration of $NaHCO_3$ was 0.285 per cent. (part IV), and if so, would it then be necessary, if K was added to this solution, to balance it with Ca? It appeared that in this case K can be omitted, but that when it is added, the quantity is not of great importance to the retentive power. The accurate balancing between Ca and K is no longer necessary.

Several thoughts, not without importance from a clinical point of view, now urge themselves forward. In the first place one is disposed to think about the advanced stage of diabetes—the coma diabeticum. The patient suffers from acidosis. It is known that chiefly β-oxybutyric acid and aceto-acetic acid are formed, and these pass into the urine in the form of salts formed with the alkalis which they extract from the blood. It appears consequently that the alkalinity and also the concentration of HCO_3 ions in the blood is considerably diminished; or, to express it in a simple way, the concentration of $NaHCO_3$ in the blood plasma has become smaller, and consequently the human kidney is in the same condition as the frog's kidney through which a liquid that contains too little $NaHCO_3$ streams.

It will be remembered that the concentration of K does not oscillate between wide margins, as was the case where the concentration of $NaHCO_3$ in the perfusion liquid was normal (0.285 per cent.). It is known that in cases of diabetes the quantity of K in the urine is greater than with normal persons. This loss of K experienced by the

blood plasma must be restored. We now ask ourselves the question whether it would not be efficient to give such patients besides the customary $NaHCO_3$ some $KHCO_3$ also.

That the administering of K serves a good purpose is supported by the experience in connexion with the well-known oatmeal cure. According to the analysis of Bunge 1 kg. dried oatmeal contains 5 to 6 grams K_2O against 0.1 to 0.4 per cent. Na_2O. One thus succeeds in bringing large quantities of K into the body. This is also effected with the potato cure of Mossé. Dried potatoes contain per kg. no less than 20 to 28 grams K_2O against 0.3 to 0.6 gram Na_2O. Finally the following fact claims our attention: The ash of the normal pancreatic gland consists to a large extent of potassium phosphate; 100 grams dry ash contain 2.8 grams K_2O and 0.04 gram CaO. In the pancreas of a diabetic person, however, there is found to be present in 100 grams dry ash only 1.9 grams K_2O and 0.17 gram CaO. Here again K and Ca vary with respect to each other (Stoklasa).

From all this it may be gathered that the relation between K and Ca plays a part in glycosuria.

I could venture the following hypothesis, which, however, still requires extensive experimental control: As long as the concentration of $NaHCO_3$ in the blood plasma is normal, even a moderate hyperglycaemia will cause no glycosuria. If, however, the $NaHCO_3$ concentration is diminished, the glomerular epithelium has become sensitive to the proportions of Ca and K in the blood plasma. A deficiency in the K must be met artificially, but the excretion of sugar can be prevented also to a large extent by increasing the concentration of $NaHCO_3$.

Be it finally said that Dr. Brinkman has made another investigation by the method described in connexion with the excretion of sugar in phloridzin diabetes. There is an extensive amount of literature on this form, and it is certain that phloridzin sets the normal kidney to excrete sugar even when the quantity of sugar in the blood is quite normal, and there is thus no question of hyperglycaemia. It is therefore renal diabetes. If this does not come about in patients after injection with phloridzin, then the tubular epithelium is looked upon as subnormal, for the normal tubular epithelium is regarded as possessing the power of absorbing the phloridzin and analysing it into glucose, which is excreted with the urine, and phloretin, which returns into the circulation, there to combine with more glucose forming new phloridzin. If the tubular epithelium is unable to analyse the phloridzin, the validity of the kidney leaves much to be desired.

Brinkman found that after the injection with phloridzin also the glomerular epithelium, in the case of the frog at least, takes an important part in the excretion of sugar.

If to the sugar-containing optimal perfusion liquid only 0.0004 per cent. phloridzin is added, then no trace of sugar is retained by the glomerular membrane. It is made perfectly permeable by it (the vena porta renalis was tied). In making out how much store can be set by the phloridzin experiment for determining the state of validity of the tubular epithelium one has thus henceforth to remember that phloridzin makes the glomerular epithelium (at least that of the frog) to a great degree permeable to sugar.

SUMMARY AND CONCLUSION.

I. *The glomerular membrane has the power of retaining free glucose.*

II. *This power is governed by the influence of the chemical composition of the perfusion liquid upon the glomerular epithelium.* If this be the usual Ringer's solution composed of NaCl 0.6 per cent., $CaCl_2$ 0.0075 per cent., KCl 0.01 per cent., and $NaHCO_3$ 0.02 per cent., and to it has been added 0.1 per cent. glucose, then a urine containing 0.07 per cent. glucose is excreted, 0.03 per cent. thus being retained. In the perfusion liquid the quantities of K and Ca with respect to each other can be altered in such a way that the retentive power need not be influenced by it. In such a case they balance each other. Instead of using K this balancing can also be effected by means of radium and uranium, that with doses which are determined not by equivalence in a chemical sense, but by the degree of radio-activity. The subjection of the kidney to mesothorium rays can be substituted for K.

III. If the concentration of $NaHCO_3$ in the Ringer's solution is raised from 0.02 per cent. to 0.285 per cent., the quantity which is present in the frog's serum, then the kidney can retain from the sugar-holding perfusion liquid more than 0.03 per cent. The artificial "urine" becomes totally free from sugar.

IV. These results deserve attention both from a theoretical-clinical and from a general biological point of view. From a theoretical-clinical, because the fact that the urine of normal individuals is free from sugar is at present brought down to a phenomenon of very nicely regulated permeability, and the conception of the colloidal sugar compound (*sucre virtuel* of Lépine), which, as a matter of fact, has never yet been isolated, is needless. The results are not without importance from a general point of view, because one is here confronted by a new form of permeability—one, namely, where cells under physiological conditions, although quite permeable to salts, are yet impermeable to glucose, which like these is also a crystalline—a species of permeability not hitherto observed and *in casu* very efficient.

V. The question arises to what the crystalline glucose is indebted for this quality, which is so efficient for the body. There would be an inclination to seek it in the size of the molecule ($C_6H_{12}O_6$), but that lactose which possesses a still larger molecule ($C_{12}H_{22}O_{11}$), and even raffinose ($C_{18}H_{36}O_{18}$), pass through the glomerular membrane. Nothing, then, remains but to consider the structure or configuration of the glucose molecule as being responsible for it. It has, indeed, appeared that the isomeric fructose and the stereo-isomeric mannose and galactose, and even the laevo-rotatory glucose (l-glucose) pass through the glomerular membrane. Thus the living glomerular membrane is able to distinguish normal glucose from other sugars. From a theoretical point of view these results are also interesting, because in them may be seen a physiological illustration of the doctrine of stereo-isomerism.

VI. From the point of view of diagnosis especially it must be remarked that when, besides glucose (dextrose), fructose (laevulose) occurs in the perfusion liquid, only the laevulose is let through. The two sugars are separated as by a filter. What is true for a mixture of laevulose and dextrose applies also to a mixture of dextrose and lactose. The lactose passes completely into the urine, the glucose is retained by the glomerular epithelium as though there was no lactose present.

VII. Regarding the relation between glycosuria and hyperglycaemia the experiments have made clear the following: If there is a hyperglycaemia of a certain degree then the glomerular epithelium sickens and allows glucose to pass through. The higher the degree of hyperglycaemia the stronger the permeability becomes. The toleration of the glomerular membrane for the sugar concentrations lying above the normal appears to be different for different individuals.

VIII. The investigations throw light on the customary therapeutic measures taken in cases of advanced diabetes and the mechanism of phloridzin diabetes (part VII).

To forestall any misunderstanding let attention be called to the fact that it is by no means my purpose to do away with the significance of the tubular epithelium. Thanks to the peculiar arrangement of blood vessels in the kidney of the frog, the investigations in question could only bear exclusively upon the behaviour of the glomerular epithelium.

BIBLIOGRAPHY.

Cammidge, *Glycosuria and Allied Conditions.*

H. J. Hamburger and R. Brinkman: *Proceedings* Koninklyke Akademie van Wetenschappen, Amsterdam. Meeting of January 27th and September 29th, 1917; September 29th, 1918 (still to appear).

H. J. Hamburger and R. Brinkman: *Biochem. Zeitschr.*, 88, 97, 1918; 93, 1919 (still to appear).

R. Brinkman: *Quart. Journ. of Exper. Physiology*, 1918.

H. J. Hamburger and D. J. de Waard: *Compt. rend.*, 165, 372 (1917); D. J. de Waard: *Biochem. Zeitschr.*, 1919 (still to appear).

THE Spanish Government has under consideration a bill presented in the Senate providing that disability contracted in the exercise of professional work shall be regarded as an occupational accident and for the granting of pensions to widows and orphans of men who have died in consequence of inoculations and contagious diseases. The amount specified is 2,000 pesetas (£80) in towns of 200,000 or more inhabitants and 1,000 pesetas (£40) in towns of less than 10,000 inhabitants, with intermediate amounts.

NOTE ON "INFLUENZA" AND PNEUMONIA:

FROM A FIELD HOSPITAL.

BY

CAPTAIN F. L. ARMITAGE, N.Z.M.C.,

BACTERIOLOGIST TO THE NEW ZEALAND STATIONARY HOSPITAL, BRITISH EXPEDITIONARY FORCE, FRANCE.

THE New Zealand Stationary Hospital acted as the infectious disease hospital for the Second Army, British Expeditionary Force, for the seven months May to November, 1918. Bacteriological examinations were made in 116 cases of "influenza" and pneumonia and in 67 healthy controls as follows: 17 "influenza," 17 healthy controls, and 10 pneumonia in the June epidemic, and 39 "influenza," 50 healthy controls, and 50 pneumonia in November. During the later period bacterial vaccines were used for prophylaxis and treatment.

Bacteriological Examination of Influenza and Pneumonia Cases.

In the "influenza" cases 17 blood cultures taken during the first few hours of the illness having proved negative and over fifty blood smears having shown nothing definitely abnormal they were discontinued, and post-nasal swabs were taken as soon as possible after admission. Sputum was examined in cases in which specimens could be obtained. In the pneumonia cases the sputum was always examined, post-nasal swabs only occasionally, as the patients were usually too ill to be troubled, and blood cultures and agglutination tests were also carried out.

Post-mortem swabs were taken from the heart, lungs, and other organs. All specimens were examined by direct smears and by culturing on trypagar plates of suitable reaction containing 5 per cent. of human blood, and the same medium and technique were used during both epidemics.

CULTURES.

"Influenza" Cases.

Organisms Isolated from Blood, Sputum, or Post-nasal Swab.	June Epidemic.		November Epidemic.	
	17 Cases.	17 Healthy Controls.	39 Cases.	50 Controls.
B. influenzae ...	9	3	32	13
Pneumococcus ...	6	5	32	7
Streptococcus ...	9	9	26	27
M. catarrhalis ...	13	14	25	40

Pneumonia Cases.

Organisms Isolated from Blood, Sputum, or Post-nasal Swab.	June Epidemic. (10 Cases.)	November Epidemic. (50 Cases.)
B. influenzae	10	37
Pneumococcus	10	50
Streptococcus	9	33
M. catarrhalis	2	27

The records showing the details of the findings of these organisms from sputa, post-nasal swabs, and necropsies, both from direct smears and cultures, in 183 cases and totalling over 1,600 results, would occupy too much space for reproduction here.

The influenza bacilli were indistinguishable in direct smears or cultures from other small delicate-growing Gram-negative bacilli such as the Koch-Weeks bacillus, and they frequently showed involution forms in culture.

Agglutination tests of the patients' serums with the influenza bacilli isolated from them showed little agglutinating power either in the early or late stages of the disease, the highest titre being 1 in 20; these tests, therefore, were not persevered with.

The results are not illuminating. The *influenza bacillus* was usually, though not always, to be found in the cases of "influenza" and pneumonia, but it was also frequently present in the healthy controls. It was found in a smaller percentage of cases and controls during the June epidemic than during that of November.

Streptococci were very frequently found in the post-nasal swabs and sputa, but were noticeably predominant in the cases of bronchopneumonia.

The *pneumococcus* was found in every case of pneumonia and in every specimen *post mortem*, and was the constant infecting organism in lobar pneumonia; it was also found in the spinal fluid of seven meningitis cases admitted as cerebro-spinal fever, none of whom developed pneumonia, but only one recovered. All the pneumococci isolated from the blood or lungs of our pneumonia cases that I have been able to type with Rockefeller serums belonged to Types I and II, some of those isolated from the sputum were Types I and II; others were inagglutinable with those serums and were classed as of Group IV.

Complications.

1. *Double Pneumonia.*—An exceptional tendency to spread to the opposite base was noted.
2. *General Peritonitis* occurred in one case, the infection spreading downwards from the diaphragm.
3. *Terminal Empyema* occurred in one case.
4. *Enterica.*—In one instance only was there any such complication, due to paratyphoid B. No ulceration of the ileum or large bowel was found at any of the autopsies.
5. *Epistaxis.*—This was a marked feature of the onset of the pneumonia, and in two cases bowel haemorrhage occurred.

Post-mortem Findings in a Series of Twenty-four Cases.

In the majority of cases the *post-mortem* examination showed a lobar pneumonia at one or both bases with coincident congestion of the upper lobes. Apical pneumonias were uncommon.

Morbid Anatomy of a Typical Case.

Red hepatization in a lower lobe, with patches of grey hepatization forming in the old-standing cases. A certain amount of serous effusion. The upper lobes in the first stage (congestion); in about half the autopsies pus was found in the smaller bronchioles. The heart dilated, but valves normal, with no endocarditis present. In one case only was a lobular pneumonia found.

The striking feature of the cases was the intense toxic condition of the patients, out of all proportion to the simple lobar pneumonias revealed at autopsy.

Vaccine Treatment of "Influenza" and Pneumonia Cases.

Nature of Vaccine Used.—The vaccine consisted of *Pneumococcus* and *B. influenzae* prepared from organisms isolated from the blood or lungs of the most toxic cases, six suitable strains of each being used. In the case of pneumococcus two strains of each of three types—mixed, sensitized, and unsensitized—the types being I, II, and an inagglutinable type of Group IV. In certain cases of bronchopneumonia in which a *Streptococcus haemolyticus* was present, that organism was included in the vaccine in the same strength as the pneumococcus.

Dosage.—The first dose used in each case of "influenza" was 75 million pneumococci, consisting of 25 million of each of three types of *Pneumococcus*, and 100 million *B. influenzae*, and in the case of pneumonia 25 million of the three types of *Pneumococcus* and 100 million *B. influenzae*, and this was repeated or decreased in the next dose according to its effect in the particular case, and increased in later doses if necessary. These initial doses were maintained throughout in order to preserve some continuity of dosage, it being considered better to have results from 50 or 100 cases treated with the same initial doses than to dodge about from one dose to another.

Intervals.—The temperature, pulse, respiration, and condition of lungs and heart were considered in deciding the intervals. No untoward results could be attributed to the dosage except in two cases of pneumonia in which rigors occurred during the night following.

Vaccine Results.

Total "influenza" cases during November ...	327
Cases with respiratory complications ...	132
Cases with pneumonia	40
Deaths	22

	Total Cases.	Developed Pneumonia.		Mortality per Cent. of Total Cases.
		No. of Cases	Deaths.	
I. Inoculated against pneumonia immediately after onset of "influenza"	10	0	0	0
Not inoculated immediately after onset	317	50	27=54%	8.5
II. Inoculated immediately after onset of respiratory complications (but before pneumonia)	56	10	5=50%	9
Not inoculated immediately after onset of respiratory complications	76	40	22=55%	29
III. Inoculated only after pneumonia supervened	29	29	15=52%	52
Not inoculated (pneumonia)	11	11	7=63%	63

As far as can be judged from the small number of cases, the prevention of pneumonia by vaccine inoculations was successful, whether carried out before or immediately after the onset of "influenza," though it must be remembered that we were dealing with presumably sound and healthy individuals (apart from the attacks of "influenza"), and that such uniformly satisfactory results might not be obtained with the average man and woman. It is noticeable that the mortality rate increased in proportion to the seriousness of the condition when the vaccine was first administered, that the earlier it was given the better the result, but that in the cases in which pneumonia occurred the mortality was about 50 to 60 per cent., whether vaccine was, or had been, administered or withheld. It is quite possible that better results might have been obtained under conditions in which more attention could have been paid to individual cases than is possible in a crowded field hospital, or even with a different vaccine dosage or interval; but, as far as pneumonia is concerned, our results pointed to the success of vaccine in prevention, but to a very doubtful benefit in treatment once pneumonia was established. Unfortunately, no antipneumococcus serum was available for treatment.

One cannot help drawing the conclusion that the success of this treatment depends upon the early administration of the vaccine, and that the best results may only be expected when every "influenza" case is inoculated immediately, without waiting for the more serious secondary infections to declare themselves.

Prophylactic Inoculation.

During the June epidemic so many cases of "influenza" occurred in the staff that we had thirty-five orderlies in hospital at one time. Arrangements were immediately made to inoculate those who had not contracted the disease; the inoculations, however, were not compulsory.

Although the total staff numbered 250 not another case occurred in the unit from that time. This appears at first to be evidence of effective inoculation, but the records show that only six individuals volunteered for the injection!

At the end of October the epidemic had acquired so serious a nature that the whole of the staff was inoculated. Nine officers, fourteen sisters, and ninety-one other ranks were at once inoculated with the following vaccine:

N.Z.E.F. Mixed Catarrhal Vaccine Prepared by Captain Lowe and Dr. Eyre.

	Dose 1.	Dose 2.
Pneumococcus	50 ...	100 million
Streptococcus...	10 ...	50 ,,
B. influenzae	10 ...	30 ,,
Staphylococcus aureus ...	200 ...	500 ,,
M. catarrhalis	25 ...	75 ,,
B. pneumoniae	50 ...	100 ,,
B. septus	50 ...	100 ,,

New Vaccine.

Meanwhile steps had been taken to prepare what was considered a more suitable vaccine.

In order that as far as possible the vaccine should provide adequate protection against the prevalent infection of the particular place and period, it was decided:

1. That the essential constituents were the *Pneumococcus*, *Streptococcus*, and *B. influenzae*.
2. That it was of fundamental importance that the pneumococci should include Types I and II, and, in the light of the experience of Major Borel of the French army, that it would be wise to add other types not included in those worked out by the Rockefeller Institute, but isolated from our fatal cases.
3. That several virulent strains of *B. influenzae* and *Streptococcus haemolyticus* isolated from our fatal cases should be included.
4. That it should be unsensitized and unheated.
5. That primary or secondary subcultures only should be used.

The vaccine was therefore prepared accordingly.

Dosage.

Fearing to use the massive dosage of Lister in case of getting very severe reaction in a staff that could not be excused duty after inoculation, and not wishing to use what was thought to be the small dosage of the N.Z.E.F. vaccine, the following scheme of dosage was drawn up and carried out:

	Dose 1.	Dose 2.
B. influenzae (12 strains) ...	500 ...	1,000 million
Pneumococcus (3 types) ...	250 ...	500 ,,
Streptococcus haemolyticus (12 strains)	250 ...	500 ,,

Interval seven to ten days.

The total dosage is admittedly not as high as it might have been; it would have been safer to have given a third dose, but there are limits to what can be done in the way of inoculation in a busy hospital with a hard worked staff, and one must admit that all hands were "fed up" with the innumerable injections received during the last four years.

One officer, 23 sisters, and 109 other ranks were inoculated with this vaccine. There were numerous cases of moderate local reactions and malaise, but none were sufficiently severe to cause anxiety or admission to hospital, in fact no one "reported sick."

That relic of opsonic index days, the "negative phase," appears to be rather a bogey as far as prophylactic inoculations is concerned. The experience of the last four years indicates that when disease appears shortly after prophylactic inoculation it is more probably due to inappropriate vaccine or inadequate dosage than to infection during the "negative phase."

Of the 114 cases inoculated with the "N.Z.E.F. mixed catarrhal vaccine" supplied from London there were a few admitted to hospital with "influenza" or "cold," but none were seriously ill and none developed pneumonia. Of the 133 cases inoculated with the vaccine prepared in the hospital laboratory there were no cases of either "influenza," "cold," or pneumonia. Considering that during the epidemic the hospital received hundreds of cases of "influenza" or pneumonia, it seems wonderful that the staff should have escaped. The inoculations certainly appear to have afforded protection, but the numbers are small and an important factor no doubt was the excellence of the supervision, the masking of attendants, and the high standard of sanitation and hygiene; for not only did no nurse or orderly in the pneumonia ward develop pneumonia, but in the whole of the seven months that the hospital was acting as the infectious disease hospital for the Second Army not a single attendant in the Infectious Block contracted any infectious disease.

One of the difficulties experienced in recording observations during the recent epidemic is due to the nomenclature of the condition, as the name "influenza" has so long been loosely used to describe any of the various respiratory catarrhs due to *B. influenzae*, *Pneumococcus*, *M. catarrhalis*, *B. septus*, *Streptococcus*, etc. Whatever be the initial causative organism, there is no doubt that the infection quickly becomes a mixed one and that the appearance of secondary infection is concomitant with the graver symptoms. It is to be hoped that the etiology of the condition will soon be made clear. that some specific

name may be determined upon to distinguish the disease in its uncomplicated form, and so put an end to the present confusion of identities.

I have to thank the late Colonel C. H. Begg, C.M.G., D.M.S., N.Z.E.F., and Lieut.-Colonel C. H. Newton, D.S.O., O.C. the New Zealand Stationary Hospital, for permission to publish these notes.

FEBRILE ACIDOSIS IN SCARLET FEVER IN CHILDREN.

BY

R. E. THOMAS, M.D., B.S.LOND., M.R.C.S., L.R.C.P., D.P.H.,

ACTING SENIOR RESIDENT MEDICAL OFFICER, HAM GREEN HOSPITAL AND SANATORIUM, BRISTOL.

ACETONURIA has been found by Harris in 84.8 per cent. of cases of scarlet fever in children.[1] I have examined daily the urine of seven consecutive cases with moderate attacks, estimating the acidity, the proportion of urea and ammonia-amido nitrogen, and testing for acetone and diacetic acid, with the following results:

1. Acidosis lasting from three to twelve days, reaching its maximum on the third to fifth day of disease.
2. Acetone and diacetic acid not always, though generally, present.
3. Urine not alkaline during administration of sodium bicarbonate gr. 10 to gr. 15 every four hours.
4. One return of acetone, increase in ammonia nitrogen from 1.7 per cent. to 6.3 per cent., and rise in acidity from 2 per cent. to 68 per cent. N/10 acid, after halving the dose of soda.
5. Nephritis developed later in the two patients who showed the most severe acidosis.

Clinically none of the cases suggested diphtheria, but routine nose and throat cultures, to discover carriers, gave two positive results from the nose. I consider the acidosis in these cases was due to scarlet fever, although it has been shown to occur in diphtheria.[2]

Finding acidosis at the start of my examinations I at once gave sodium bicarbonate. As this did good in moderate and severe cases I have made it routine for all, with satisfactory results. I ask that it shall be given for a week to ten days to all children who have scarlet fever, the dose being regulated by the reaction of the urine. Further, I am so convinced that acidosis is present in every other acute febrile complaint of children that I plead for the giving of soda to them pending the proof of this contention.

Methods.

NH_3+NH_2 nitrogen = formalin (BRITISH MEDICAL JOURNAL, March 25th, 1909).
Urea = hypobromite.
Acetone = sodii nitroprusside } Depth of colour.
Diacetic acid = ferri perchlor. }
Acidity = N/10 NaOH with phenolphthalein indicator. (Neutral potassium oxalate used if urine was high coloured.)

The two following cases had nephritis; one showed it associated with acidosis on the twelfth day, starvation doing harm; both suggest the possibility that acidosis aids in determining the complication, and that early administration of soda may reduce its incidence.

CASE I.

A boy, aged 7, was admitted on the fourth day of the disease, pale and listless; pulse 120, weak; temperature, 99.2°. His condition caused some anxiety. The culture from the throat was negative, that from the nose yielded the Hoffman bacillus.

Urine: Ammonia nitrogen rose to 13.9 per cent. on the fifth day, and fell gradually to 4 per cent. on the eleventh and twelfth days. Acetone and diacetic acid were never found. Nephritis developed on the twenty-fourth day and lasted until the thirty-fourth day. The urine on the twenty-fifth day contained a trace of albumin, and hyaline and granular casts; ammonia nitrogen 1.8 per cent.; no acetone or diacetic acid.

CASE II.

A girl, aged 6, was admitted on the tenth day of disease, peeling. Temperature 97.8°, pulse 116. She was given carbohydrate diet. On the eleventh day there was no albumin, but a trace was present on the twelfth day; the temperature was then 99°, pulse 120; she had vomited. By routine treatment she was given liquor ammonii acetatis and barley water only. On the thirteenth day the child was worse; pulse 130 to 140, irregular, weaker; she was still vomiting. The urine contained a trace of albumin, and hyaline and granular casts. Acetone and diacetic acid were present. Acidity = 100 per cent. N/10 acid; ammonia nitrogen 6 per cent.

Treatment consisted of barley water, milk 1½ pints with half an ounce of sugar, and sodium bicarbonate gr. 15 every three hours. On the fourteenth day her condition was improved. Milk 3 pints with half an ounce of sugar, and sodium bicarbonate gr. 15 every four hours. She was still better on the fifteenth day: ammonia nitrogen 4.8 per cent.; acidity = 72 per cent. N/10 acid; acetone was present. Carbohydrate diet; soda continued. On the sixteenth day there was no albumin; ammonia nitrogen 2.4 per cent.; acidity = 40 per cent. N/10 acid; there was a trace of acetone. On the seventeenth day she was much improved and was taking food well. Ammonia nitrogen 2 per cent.; acidity = 8 per cent. N/10 acid; no acetone. Soda reduced to a dose every eight hours. She made an uninterrupted recovery.

I have had only two cases in adults (males aged 17 and 23). Both had increased ammonia-amido nitrogen, the younger giving 11.3 per cent. on the fourth day of illness, with acidity = 125 per cent. N/10 acid. Neither had acetone or diacetic acid. They benefited by soda, and I consider all moderate or severe adult cases should be given it.

REFERENCES.

[1] Harris, *Lancet*, 1910, vol. i, p. 1346. [2] Peters, BRITISH MEDICAL JOURNAL, 1918, vol. i, p. 10.

NATIONAL MEDICAL TREATMENT.

BY

WILLIAM J. HOWARTH, C.B.E., M.D., D.P.H.,

MEDICAL OFFICER OF HEALTH, CITY OF LONDON; MEMBER OF THE LONDON PANEL COMMITTEE,

AND

B. A. RICHMOND, M.D., J.P.,

SECRETARY, LONDON PANEL COMMITTEE.

IN view of the fact that health matters, including the treatment of sick persons, occupy a prominent position in the social reforms contemplated by the new Government, it is desirable that the medical profession should either have some definite views as to what future action will prove acceptable to it, or be prepared to submit a scheme, approved by the majority, for the consideration of the general public.

The views of the profession, and those of the general public as represented by the law makers, on a subject which is peculiarly technical in character, and which is trammelled to a certain extent by tradition, are likely to be divergent, and the best opportunities for reconciliation are not afforded when a scheme, which represents in the main only the views of the latter section, has been prepared and submitted as part of a settled policy.

The subject is of so involved and intricate a character that it would be impossible for any single individual outside an interested Government department, to which all sources of information are available, to prepare a detailed scheme which would meet all difficulties, or which could be regarded as more than a basis for discussion.

Up to the present the chief efforts have been directed towards the elaboration of schemes which have advocated what is known as a whole-time state medical service. To the generality of the profession such a scheme is not acceptable, but the difficulties associated with a part-time service have been such as have apparently rendered it difficult for those who favour such a service to formulate general principles which could be developed into a piece of efficient administrative machinery.

Alternatives.

If alterations or additions to the present method of state treatment—and the medical benefit under the Insurance Act may reasonably be included in such a term—are decided upon, one of three courses will probably be followed, namely: (*a*) Additional powers and responsibilities may be tacked on to the present panel system, or (*b*) a whole-time service may be created, or (*c*) a part-time service may be established based on experience gained in panel work.

The limitation of medical benefit to insured persons alone cannot continue. Another service has been added to the many competing classes of state treatment. The Insurance Act accepts no responsibility for the treatment of persons with physical defects at ages prior to the insurance age, but this would probably be met by inclusion of dependants. If such were included the intricate

problem of contribution or non-contribution would arise, not to mention the controversy as to whether they should receive the non-medical benefits.

The treatment of the uninsured and those requiring permanent medical treatment and maintenance, many of whom are now the responsibility of the Poor Law authority, would still remain a problem for solution. If insured persons and dependants were included in a state scheme of medical treatment, whether on a contributory basis or otherwise, the numbers remaining outside such a scheme would, comparatively speaking, be few. A reasonable estimate would be less than one-third and more than one-fourth of the total population. These various administrative difficulties would be of such magnitude that it would be necessary to consider whether it would not be sound policy to make the state service available for every member of the community who desired to use it. The question of contribution is likewise an important principle, and we think we might safely prophesy that present policy would be against charging weekly contributions to cover the cost of the medical treatment of dependants. The objections are obvious: only insured persons and their dependants would be provided with state treatment, and even for these there would be differential terms.

Universal Medical Treatment.

As the prosperity of the state, moreover, depends upon the health of its citizens, it seems reasonable to expect the state to make the provision necessary for maintaining health by arranging that medical treatment shall be available for everybody, and that the costs of such service shall be a central charge. In either direct or indirect manner such central expenditure will be made up in varying proportions by the different members of the community according to their taxable value—the state will provide the machinery, the community will pay the costs, and both ought to profit.

The treatment now provided under the Insurance Acts is on this basis, since the contribution of the individual insured person is more than absorbed by benefits other than medical benefit, the costs of the latter being furnished by employers' contribution and state subsidies. The direct weekly contribution of a man is 4d. and of a woman 3d., and an allocation[1] of these amounts is as follows:

	Men.	Women.
Sickness benefit	2.39d.	1.74d.
Disablement	0.78d.	0.81d.
Administration (say)	0.83d.	0.45d.
Total ...	4.00d.	3.00d.

No balance is left out of the insured's direct contribution for sanatorium benefit, maternity benefit, medical benefit, or the costs of administration of these benefits. There is therefore no new principle involved in the suggestion that medical treatment should be a state charge without direct contribution, whilst the extension of the privilege to every member of the community seems desirable on grounds of general policy.

If such a principle be accepted it follows that the best medical treatment should be available for every individual unit of the community, to effect which all medical services should be co-ordinated. The question of control then arises, and we suggest that it should devolve upon the new Ministry of Health. This central authority might with advantage delegate the executive powers to local bodies created *ad hoc*, or as additions to the powers of those already existing. There appears to be no reason why the same local body which administers sickness, invalidity, and unemployment benefit should administer and have executive powers over the organization providing medical treatment.

Administration.

The administration of benefits paid for should be undertaken by the contributors or by their elected representatives. It is not likely that sickness and invalidity benefits will be extended to every member of the community, and the existing insurance organization, or some modification of it, might well continue to administer these. Medical benefit, if extended as suggested, would be paid for by the whole community, and therefore the administration should devolve upon the elected representatives of the community, aided by nominees of the employees—that is, the medical profession, elected by the profession, together with representatives of the insured persons. Such a proposal involves the transference of the present medical provisions from the Insurance Commission to the control of the Ministry of Health, making local administration the responsibility of local authorities, and leaving the other functions of the Insurance Act to be still controlled by the Insurance Commissioners. As the Insurance Commission will probably also form part of the Ministry of Health, there would be no difficulty in arranging an organization which would co-ordinate medical work with sickness and invalidity benefits. Benefits would be valid on the basis of medical certificates, and the method of issuing the certificates would be settled by regulations issued by the Ministry of Health, which would have controlling power over each section.

The unit area for such a scheme requires careful consideration. It should be large enough to have the backing of a large rateable value to make the financial proposals acceptable, and to balance inequalities of social status. We suggest that in London the administrative county should represent the unit area to control, and in the provinces, the councils of counties and county boroughs.

When the Education Act was launched, fear was expressed lest private schools would go under in the resulting competition, but this has not happened. Similarly we think that, in the case of a medical service, private practice would still remain, notwithstanding the availability of free treatment. We consider that in any scheme of public service it should be possible for any practitioner, if he so desire, to undertake both classes of work.

Scheme.

We do not propose to consider the points for and against whole-time and part-time services, but would emphasize our opinion that the main advantage of the whole-time service would be that it would be administratively more flexible. This is more than counterbalanced by the advantage of a competitive part-time service in which the individuality of the practitioner becomes the important factor in his success.

In outlining a scheme we have considered what are the minimum essentials to be observed, and we submit the following:

A. *As Affecting the Public.*

1. The best possible medical treatment should be available for every member of the public, and should include consultations, surgical treatment, dental treatment, in-patient treatment where necessary, the advantage of all modern developments, the best midwifery service and efficient nursing.
2. The freest possible choice of medical attendant consistent with administrative efficiency.

B. *As Affecting the Doctor.*

1. The service should be open, and appointments should be so arranged that the "slacker" may be eliminated, and ample opportunities may be afforded for the beginner.
2. There should be opportunity for the sternest competition.
3. Non-professional work should be limited to the minimum.
4. Adequate provision should exist for enabling the profession to take part in the control of its members.
5. The service should be such as will encourage doctors to continue to improve their knowledge, and be such also as will bring the general practitioner more closely into touch with those who practise in the specialists' ranks, thereby creating a better feeling of *esprit de corps*.
6. There should be satisfactory remuneration.
7. The work should be pensionable on a contributory basis.

C. *As Affecting Local Authorities.*

1. The public service should be so flexible and elastic that any future developments of state provision could be included in it.
2. The sickness rates and knowledge gained should be so recorded that they may be readily available for assisting local authorities to suggest improvements in the domain of preventive medicine.

We believe that a part-time service could be organized to meet these requirements; the first essential is that any public service should be on the basis of central clinics.

Clinics.

The work of a clinic would be somewhat on these lines: Clinics would be arranged in areas to serve varying numbers of the population, dependent on the social status of the inhabitants. One clinic might be required for 20,000 of the population, or one might even serve in some areas a population of 50,000. Each clinic would be fitted with consulting-rooms, waiting-rooms, and rooms for private examinations and for ordinary clinical methods. The residence of each doctor working at the clinic would

be connected therewith by means of a state telephone. His hours of attendance would be fixed. At the clinic would be nurses sufficient to assist at the consultations and to carry on the outside work. At this clinic also would be a clerk who would have charge of the docket of papers referring to any particular individual. Dispensing would be carried out at the clinic.

In larger areas would be a special clinic for other work and serving a series of clinics. This might be arranged either as a new institution, or at—as will be described later—one of the transformed Poor Law infirmaries, or at a general hospital. One or more of the ordinary clinics might also be at the infirmary or the general hospital for reasons which will also be recognized later.

Persons would be entitled to medical attendance by simple registration with the clerk at the clinic, and the guarantee of eligibility to the state provision—that is, alien or national—would be the production of the national registration card.

A set of circumstances such as the following would then arise:

A person has registered at the clinic. The clerk has notified the doctor some time previously that such a person is on his list for treatment. He now requires treatment. If unable to attend at the clinic, his representative calls there and requests the attendance of the doctor at the home of the patient. The clerk in charge now rings up the doctor and notifies the need of a visit. The clerk gives to the messenger a suitable form, which is handed to the doctor at his visit. No doctor would be permitted to charge private fees from any patient who had already intimated his desire to receive his services. The doctor continues to attend until such time as he thinks the patient is fit to attend the clinic; or the patient's condition may require a consultation at home with a specialist, for which arrangements will be made, or the patient may require an operation; this may be performed at home if slight, or at the special clinic if the case requires rather special attention, or at the infirmary if more severe; in this institution it may be performed either by the practitioner or by a more skilled surgeon; or the patient may be sent to a general hospital, and there receive his treatment at the hands of a member of the staff.

The same possibilities are available for medical work. If the patient requires simply a consultation, he attends personally at the clinic at the hour at which he knows the doctor of his choice will attend. It is not an administrative difficulty to arrange that the number of home attendances shall be recorded by the doctor and handed in to the clerk at the clinic. Suitable safeguards against irregularities ought not to be difficult to arrange. The clerk will then enter these visits on that particular doctor's account card, which is kept at the clinic, and also any consultations carried out by him at the clinic which should be credited to him. In this way the doctor's account is made up not by the doctor but by the clerical staff at the clinic.

One of the objections which will be raised to the above is, that the public will not accept this common centre. There will, however, be no compulsion for any member of the public to accept this treatment, except perhaps so far as offences under the Children Act may be concerned. If any members of the public refuse to avail themselves of the opportunities provided, they can still go to the doctor of their choice and pay for private treatment, but that choice would involve them not only in payment for the consultation, but in being called upon to pay for expert consultations, for operative work, or for in-patient treatment, if such should be necessary—in fact, for any of the ancillary provisions which would be available under the state system. It follows, therefore, that if a really adequate first-class system with all these advantages were provided, the sentimental objection to the common clinic would disappear with the increasing knowledge of the advantages which accrue to persons availing themselves of the facilities. These difficulties will be of major importance in the case of the present adult population. If the system develops on sound lines, the upgrowing population will, by association with school work, tuberculosis work, and in other ways, come to regard the new procedure as normal, essential, and desirable.

The special or major clinics, which would serve larger areas and a reasonable number of the ordinary or minor clinics, should be the centres at which all special medical work is carried out—for example, maternity and infant welfare work and the tuberculosis dispensary. There should also exist arrangements for special consultations as it is obvious that consultants could not attend every ordinary clinic. At these places should also be facilities to enable the general practitioner to perform such operations as are generally done in the out-patient department, and after the performance of which the patient is usually sent home. Dental work should also be performed here. The scope of special duties could easily be enlarged upon, but it is quite obvious that it would be simple to connect the minor clinic with the major clinic, and that it would prove a means whereby the practitioner would be able to take his rightful share in the various state treatment schemes which now exist and are conducted in a more or less haphazard manner, and without regard for the claims of individual members of the profession other than the few specially appointed.

These larger clinics might very well be located either at a general hospital or at a remodelled Poor Law infirmary.

Hospitals.

General hospitals will obviously be required to take part in any general scheme of state treatment, and some reorganization will be necessary. If every patient were entitled to treatment by a general practitioner a large amount of present out-patient work would be taken from the general hospitals. This would leave the staff more time. It might result in the out-patient department being principally a department in which consultation work is carried out—that is, where patients sent by practitioners from the minor clinics would appear with a form setting out the reasons for their attendance. These patients would be examined by a member of the hospital staff, who would report to the practitioner his opinion both as to diagnosis and treatment. If it is a sound assumption that different members of the staff would, under the proposed system, have time available, they should be so organized as to constitute a rota for home consultations in areas defined. There should also be attached to such an institution one or more minor clinics, and if possible the major clinic. At a teaching school the patients attending these clinics could be used by permission—and we do not think it would be difficult to obtain this permission—for the instruction of medical students in minor ailments. The beds would be available for treatment of accidents and urgent cases and of those patients who require the services of an expert physician or surgeon, and, in addition, it may be possible to reserve a few beds for the treatment of patients by practitioners, particularly those cases in which the practitioner considers that home circumstances are not such as to give the patient the best chance of cure. For all this work the state would pay, but it does not necessarily follow that the controlling body—subject always, of course, to state supervision—need be very much altered.

The control of Poor Law infirmaries should be taken from the Poor Law authority and administered under the scheme. The organization would be something similar to that of the present general hospitals, but as a rule they should be administered by the local authority, and it is in such institutions that the main number of beds available for the treatment of patients by the patient's own doctor should be located.

The question of treatment and maintenance of permanently bedridden cases has to be decided, but it appears that the charge for maintenance of such persons might in some instances be one on the funds of insured persons; in others the state would pay. It is not easy to solve this question, and the alternative, and probably the better way, is to establish special institutions for the indigent infirm under the control of the state medical treatment organization.

Consultation and Bacteriology.

As regards the latest developments in bacteriology and medical science, it is obviously impossible that each separate clinic could be self-contained. A minor clinic simply needs equipment on the lines of a surgery of a modern progressive practitioner, but other work—for example, *x*-ray work, special blood and bacteriological work—should be done either at a major clinic or in a special pathological laboratory set up for the purpose. The essential feature is that the facilities provided by such a place should be available for any practitioner either for

the examination of a patient or a pathological product, and that a report should be furnished to him direct.

Consultants would generally be the men who were already attached to the various hospitals. A basis of payment should be arranged, certainly in the case of home consultations. Probably there would develop a method of payment of the staffs for hospital work, but this appears rather to come within the question of hospital administration and it would become a matter of agreement as to what amount the Government paid hospitals for expert work of this character.

In places unprovided with a hospital, a small institution suitable for the needs of the district would have to be established, and in rural districts the organization would require modification, but it seems to us not impossible to fit in the essentials. Central clinics in the more sparsely populated districts would have to be replaced by the doctor's surgery, and some system of control of accounts would be necessary as these would be kept by the practitioner, who would be paid, of course, for his services. The consultation work in these cases might be undertaken, as suggested by the President of the Local Goverment Board, by travelling clinics. The special operative work and special in-patient treatment would have to be arranged for at the nearest general hospital and the expenses of the patient to and from would also be provided.

Finance.

Is such a scheme as the above prohibitive on the account of expense? We must admit that our sources of information are extremely limited, and we submit with all reserve as a basis for consideration the following considerations:

Assume practitioners' payments to be on the basis of work done, the objections to this method on the score of book-keeping are removed by the fact that at the clinic there ought to be kept a record of any particular doctor's work. A consultation could be regarded as a unit of payment, and other work, such as home, urgent, and night visits would be represented by multiples of this unit. As it is essential to prevent excessive visiting, the unit per visit should closely approximate the unit value of the consultation. Perhaps more consideration might lead to the adoption of a case value system for cases of patients treated at home.

We have not considered the question of remuneration, but assuming that, prior to the war, 7s. 6d. might have been held to be adequate to cover the medical risk of every person registered we should have this situation:—

As a varying number of the population would not avail themselves of treatment, it is clear that a smaller sum per head of the total population would represent the equivalent of the medical risk of registered persons. In any area of administration, therefore, it follows that there would be in that area a practitioners' fund equal to the total population multiplied by the agreed capitation fee, and this we estimate would be about ten million pounds. That fund would then be paid out to the practitioners in proportion to the number of units which had accrued to each during any prescribed period—monthly, quarterly, or otherwise. If sufficiently large unit areas were arranged, inequalities in social status would be smoothed out, and the effects of sudden increases or decreases in populations minimized. If London, for example, were made a single area, practitioners in a district like Hampstead would take fewer units out of the London pool than would a practitioner, say, in Stepney, and similarly the aggregate income of the Hampstead practitioner would require to be made up more by private practice than would be the case in Stepney.

It will be seen, therefore, that, although it is not a direct capitation payment for each patient, the fund is to be made up on a capitation basis, and the allocation results in the man who does the most work receiving the most money. This fact, together with the increased freedom in the choice of doctor, would result in competition being keen and in the practitioner putting forth his utmost endeavours both to retain his old patients and to obtain new ones. There will be very little necessity to limit the practitioners' list. The patients would themselves object to or accept the circumstances associated with any particular doctor, and the practitioner would discover his physical limitations, with the result that a reasonable balance would automatically be discovered.

Burdett's Hospitals shows that in London and the provinces 27,906 hospital beds were provided at a total annual cost of ordinary and extraordinary expenditure of £2,855,236. Sir A. Newsholme in his last report estimates that there are at least 45,000 beds provided in voluntary hospitals. The total cost, therefore, might be estimated at about £4,500,000.

In addition to the above there are available:

For small-pox	39,000
For tuberculosis	10,000
For insane and in asylum	109,000
For the feeble-minded	12,000
Provided by Poor Law authorities... ...	94,000
	264,000

A grand total of 309,000. Of these beds, 264,000 are already paid for by the community, and therefore the transference of those to a new authority would not involve the public in additional expense; and apparently, if the Government took over the voluntary hospital administration in its entirety, the cost would approximately be as stated above, excluding capital expenditure.

Assuming the population of England and Wales to be 36,500,000, a charge of 13s. a head would realize £23,725,000. From this deduct the total cost of hospitals (excluding capital), £4,500,000, and the Practitioners' Fund of, say, £10,000,000; there is available, without taking into account the saving on tuberculosis, maternity and child-welfare treatment, and the outdoor medical service of the Poor Law, a sum of between nine and ten millions for all the remaining work. Without further analysis this does not seem to us an impracticable proposition.

Pensions.

A State Medical Service will be much improved in every respect by pensions on a contributory basis. The permanent scheme might be on the lines of existing schemes, in which varying contributions, based on salary, are annually deducted from officers' emoluments. The percentage amount would depend upon the age of the practitioner at the time he entered the service, and would vary between 2 and 3½ per cent.

The age for compulsory retirement should be 65, and the optional age 60, provided forty years' service are recorded. Professional men differ fom the clerical staff in the important respect that there is a possibility of a clerk arriving at the forty years' provision at least five years earlier than is possible for a doctor, since a clerk may enter a pensionable service at the age of 16, but no doctor before the age of 21. It follows, therefore, that the clerk may retire at $16 + 40 = 56$, but no doctor before $21 + 40 = 61$. Seeing that the professional training is just as important as the preliminary clerical training, the doctor should either have five years added to his period of service, or the voluntary period should be reduced to thirty-five years, with a proviso that the retiring age should still remain at 60. In the case of incapacity the age of retirement would be that at which permanent incapacity is reported.

The amount of pension is computed in sixtieths, so that forty years' service represents two-thirds. In order to encourage men to retire before they markedly decline in ability or vigour, the basis of calculation should be the average of the last five years' receipts from the state. This would impel a man to relinquish state practice before the decline was so pronounced as materially to reduce his average.

The chief difficulty at the commencement of the scheme would be in respect of those approaching the age limit. The state, by setting up a free service, would materially diminish the value of the vested interest which these older practitioners have created for themselves. Without state competition the practice would have a transferable value. In the altered circumstances this would be diminished, and doctors should be discouraged from regarding their state patients as transferable to a successor.

If this principle be accepted, then some compensation is due from the state, and this should take the form of pensions to those who are compulsorily retired and who during the last few years have been engaged in panel work. It would not be an expensive matter to pay pensions to those already 65 years of age, basing the amount on the last five years' returns from panel work, and as regards men of between 50 and 65 increased contributions would help to remedy the fact of their having only a few years' service to their credit. Such treatment

of men who would be so affected would be an act of simple justice, and would do much to remove the opposition which would be aroused from practitioners who would otherwise have reason to contemplate the future with grave concern.

The pensionable character of the service could be used to ensure that practitioners kept up to date in their knowledge. It is obvious that if the state pays, the state will establish some sort of supervision over the work done. Mere supervision, however, will not prove adequate; a man should keep pace with modern progress. Post-graduate courses should be available, and attendance of men should be encouraged. Up to the age of 50, or even later, men might attend such courses. In fact, a definite syllabus indicating a course of instruction might well be laid down by the authorities and the reward for attendance be an addition to the number of years' service, in the aggregate, not to exceed a number, say five to ten, but these additions should not justify a man retiring before 60 except on medical certificate. They would simply assist in increasing his pension when he had decided to retire.

There are many points in the above outline which have not been touched upon, particularly the question of control, but in view of the suggestion that local authorities should administer, and of the present policy decided by the Government that advisory councils shall be a feature in future medical administration, we think it inadvisable to enlarge upon the subject further than to suggest that a local medical advisory committee, representative of practitioners in the area and elected by them, should administer the scheme jointly with the approved committee of the local authority. This composite committee would be vested with the necessary powers and would work under regulations issued by the Ministry of Health. It is probable that minor disciplinary powers would be exercised by that committee, leaving matters of serious importance to be dealt with by the central body. In any scheme it should be arranged that purely medical matters should be dealt with by medical men.

NOTE.—Although we both are officially associated with the London Panel Committee, we desire, in order to avoid misunderstanding, to state that the above represents our personal views, and in no way those of the committee.

REFERENCE.

[1] Comyns Carr, Garnett and Taylor: *National Insurance*, p. 112.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TREATMENT OF INFLUENZA BY LARGE DOSES OF SALICIN.

THE appended table shows the duration of 335 cases of influenza which have come under observation since October 29th, 1918, and also the number of hours from the estimated commencement of the illness (fever, etc.) within which treatment was commenced. Every one of the cases has been treated with doses of salicin, gr. xx, every hour for twelve hours, followed by gr. xx every two hours for the next twelve hours. The table shows fairly clearly that the earlier the patient can be got fully under the influence of the drug the shorter the period of fever and the more rapid the recovery. Every case which has been observed and treated since October 29th is included in the table. There was not one single complication in any one of them, and every one has recovered perfectly. The ages of the patients ranged from 77 to 7 years. In the case of young persons under 16 years of age the dose was reduced and given in the proportion of 1 grain per year an hour (that is, a child of 10 had gr. x every hour). But the best and quickest recovery of all these cases occurred in a child of 14 who, on maternal diagnosis, had ten doses of gr. xx before being seen. No bad effects whatever followed the administration of these large doses of the drug in any instance. About thirty individuals had more or less buzzing in the head, three had a red punctiform rash, and a larger number sudamina. Both the rash and the buzzing subsided at once as the drug was left off.

Every one of the patients was in a position to take proper care of himself or herself, and was kept strictly warm in bed until the temperature had been normal for at least twenty-four hours. Several old cases of valvular heart mischief are included in the series. They recovered as quickly as any others, and suffered no inconvenience. As a rule those cases which commenced with very high fever (103.5° to 105°) seemed most amenable to the remedy, and came to an end more quickly than those which began with a more moderate temperature. There is no doubt whatever, as the bacteriologists have shown, that this November and February epidemic is quite different from the one which invaded us last July. Clinically the symptoms are more severe, and therapeutically the salicin treatment has not quite the same result. In all epidemics from that of 1889 up to and including that of July last practically every case treated with salicin, as set forth above, came to an end, without complication, in forty-eight hours at the latest. Since November the cases are not cut so short, but though symptoms persist in some instances for five, six, or seven days, yet every form of complication is avoided, and recovery is rapid, and with no bad after-effects. The only case out of the 335 which was at all troublesome was one of the "gastric" variety, in which diarrhœa and vomiting were persistent, and which ran for the full seven days. It is perhaps as well to point out that these cases follow in unbroken series upwards of 2,300 treated by the writer in the above-mentioned manner since 1889, every one of which has ended in complete recovery with no complication, and without a single death. The first series of 250 of these was published in the *Lancet* in 1891. The late Dr. T. J. Maclagan had the same results from the same treatment. He published his results at the time.

Table showing Number of Hours after the first Symptom when Salicin was begun, and the Day on which the Temperature returned to Normal.

Hours.	Day on which Temperature returned to Normal.						Total Cases.
	2nd.	3rd.	4th.	5th.	6th.	7th.	
2 ...	11	6	4	3	1	0	25
4 ...	8	13	26	17	7	3	74
6 ...	18	29	38	17	10	5	117
8 ...	3	7	10	9	6	3	38
10 ...	1	4	8	3	1	2	19
12 ...	0	3	4	6	7	4	24
14 ...	1	1	3	7	3	4	19
16 ...	0	0	2	4	6	1	13
18 ...	1	0	0	3	0	2	6
Total ...	43	63	95	69	41	24	335

London, W. E. B. TURNER, F.R.C.S.

THE WET PACK IN INFLUENZA.

THERE seems to be great variety of opinion as to the treatment of influenza. The general recommendations are: Rest in bed, good nursing, antipyretics, and heart stimulants. The only safe and reliable antipyretic is cold water, but I have not seen its use suggested. The cold wet sheet pack is at once a powerful and sure antipyretic and a valuable heart tonic.

Some years ago, during an epidemic of influenza, I adopted this treatment, and had the satisfaction of seeing all the patients recover with remarkable rapidity.

All that is required is a sheet wrung out of cold water, and two or three blankets. The Brand bath is another method of reducing temperature, but with the volume of water in this method the rapidity of elimination is apt to overcome the vigour of the patient. I prefer the wet sheet pack; it is more easily applied, and its action can be graduated in intensity according to the quantity of water used.

The duration of each pack should not exceed thirty to forty minutes, or until the sheet feels nearly as warm as the surface of the body. It may be repeated immediately once, or even twice if necessary. Before applying the wet sheet the face and neck should be bathed with cold water, and a wet cloth applied to the forehead.

W. C. PHILP, L.R.C.P. and S.E.,
M.O. in charge Red Cross Clinic for Physical Treatment of Disabled Soldiers, London, W.

Reports of Societies.

TRANSFUSION IN DISEASES OF THE BLOOD.

AT a meeting of the Section of Medicine of the Royal Society of Medicine on February 25th, Dr. G. NEWTON PITT being in the chair, Dr. O. LEYTON read a paper on transfusion in diseases of the blood, based on 100 transfusions. The main object of the paper was to record the method adopted and the results obtained.

Methods.

His experience began seven years ago by the transference of blood from an erythraemic patient to one suffering from pernicious anaemia. A syringe of 20 c.cm. capacity was fitted with a three-way tap, to which the rubber tubes and needles were attached. The whole apparatus was washed out with liquid paraffin and drained. Blood was drawn from the erythraemic patient and directly injected into the vein of the anaemic one. After 40 c.cm. had been injected the latter complained of severe cramp in the limbs and the transfusion was stopped. The symptoms subsided after about a quarter of an hour, and it was found that the red blood cells had increased from 1½ to 2 million per c.mm. In the absence of a knowledge of Moss's work on iso-agglutinins, the symptoms were ascribed to obstruction of capillaries of the central nervous system by minute quantities of liquid paraffin. The patient felt so much better that he desired another transfusion. On this occasion care was taken to expel all excess of paraffin, and a glass window was put in the tube close to the needle to ensure that no air was injected. The transfusion of 80 c.cm. of blood led to the same symptoms as before, together with nausea, vomiting, and severe palpitation. The donor belonged to Group 2, whilst the patient was of either Group 4 or 3. No lasting benefit ensued.

In a patient with recurrent pernicious anaemia a series of transfusions were made by the multiple syringe method so as to avoid cutting or obliteration of veins. The patient, whose blood was of Group 4 was *in extremis*. There was no difficulty in transferring 200 to 300 c.cm. by this method, but the blood in the needle in the donor's vein then clotted, and a fresh needle had to be inserted into a fresh vein. To obtain 600 c.cm. the donor had to be pricked at least three times, and sometimes, when fright hastened the clotting, even four or five. Needles were therefore made with cannulae; if the blood in the cannula clotted, that cannula was withdrawn and a fresh one inserted. By this means an unlimited quantity of blood could be obtained by pricking the donor once. Needles and cannulae of various gauges were made. The needle must be sharpened every time before use. The end of the cannula should be rounded, and should project about 0.5 mm. beyond the point of the needle. The syringes were of 20 c.cm. capacity, and had attached about 10 cm. of rubber tubing of about 1 c.cm. capacity. A nozzle attached the tubing to the mount of the needle. The syringes were coated with vaseline and washed out with liquid paraffin, and the tubes were filled with a solution of sodium citrate (5 per cent.) and sodium chloride (0.45 per cent.) to prevent waste of blood and coagulation. The rubber tubing permitted slight movement of the syringe without damage being done to the vein. If the blood showed a tendency to clot the citrate solution was caused to mix with the blood by shaking the syringe slightly. The solution should be made with water sterilized immediately after distillation. Vessels containing sterile normal saline should be near the recipient and donor, in case the rates of drawing and injecting blood failed to correspond, for the interval might be filled up by passing saline through the cannula, thereby preventing clotting in the vein.

The introduction of the needle was facilitated by distending the vein by applying a pneumatic armlet and compressing the air in it to the diastolic blood pressure of the donor or recipient respectively. The arm should be kept warm until all was ready, and the pressure should not be released until the cannula had been passed through the needle.

The donor must belong to the same group as the recipient. Even if donors of Group 4 only were used there must be the risk that the serum of the blood injected might haemolyze and damage the patient's red cells. Donors must be free from malaria, syphilis, and tuberculosis. He preferred a donor unacquainted with the patient, because frequent transfusions might be necessary, and the donor might falsely assert that he was feeling quite well, in order to supply further blood to a relative or friend. If only one transfusion was anticipated, there was no reason to avoid a relative as a donor.

The preparation of the donor consisted in assuring him that he would feel no ill effects, and that the amount of blood to be taken was less than half that which he could lose without discomfort. The donor usually had a cup of coffee shortly before transfusion, and he was encouraged to smoke during the operation. If the donor became frightened his blood clotted rapidly, and if faint the blood ceased to flow. A short interval, during which saline was injected, was required before proceeding. There were no after-effects. He favoured using the same donor frequently.

Preparation of the patient consisted in depriving him of all but the lightest food for six hours before transfusion. Rigor and slight pyrexia were less frequent and less intense if a small dose of morphine and hyoscine was given half an hour before the operation.

Results.

The hundred transfusions were distributed very unevenly among ten patients, one having more than fifty, whilst two had one each. The immediate effect was masked by the morphine and hyoscine. Afterward the patient felt much less ill. When there had been haemorrhage from the bowel or uterus it ceased. The vomiting and nausea—sometimes accompanied by diarrhoea in extreme anaemia—were alleviated. The blood picture improved, the red cells being sometimes more than could be accounted for. Perhaps this was explained by polyuria which was very noticeable during the first few hours after transfusion. The increased number of red cells might be maintained or might disappear during the next four days.

Conclusions.

After relating cases, including some of pernicious anaemia, a case of myeloid leukaemia, and two cases of aplastic anaemia, which were treated in this way, Dr. Leyton drew the following conclusions: (1) In the majority of cases symptoms were alleviated by the transfusions. (2) In some a series of transfusions at short intervals led to the blood becoming normal for a time. (3) Perhaps in a small percentage life could be maintained indefinitely by supplying the blood at the same rate as it was destroyed. (4) In many cases the disease was progressive in spite of transfusions. The blood picture became worse and worse, and death was only postponed for a short time.

In the course of the subsequent discussion Mr. ALEXANDER FLEMING said that his experience was confined to transfusion of septic surgical cases at the base in France. He had used the citrate method, transfusing from 600 to 1,000 c.cm. into the recipient. There had been no untoward symptoms except in one case; the considerable distress experienced in that case after the injection of 100 c.cm. was possibly to be explained by the transfusion being given too quickly, or by wrong classification of the donor. The surgical teaching was that the blood of donors of Group 4 could be given to anybody, since no serums agglutinated their corpuscles. He had used members of this group in every case. The result of the transfusions had been to benefit the patients immediately. Nearly all had had a secondary haemorrhage. In them, after transfusion, the colour returned and they felt better, an improvement which persisted. An attempt had been made to combat sepsis by utilizing the blood of recovered cases, but there was no evidence that it had any advantage.

Dr. H. INGLEBY said that her experience of transfusion in cases of pernicious anaemia was similar to that of Dr. Leyton. The most successful result was in a case of gastric ulcer with severe haemorrhage, which was rapidly getting worse, and seemed likely to end fatally. After the first transfusion a rigor and haemoglobinuria occurred, but the general condition improved, and transfusion was employed on two subsequent occasions. The amount of blood transfused had been small, varying from 100 to 10 c.cm. This raised the question whether small quantities were not as useful as large, and whether transfusion was not in part beneficial through stimulating the bone marrow.

Dr. F. S. LANGMEAD spoke of transfusion for "the haemorrhagic disease of the newly born," in which the procedure described by the reader of the paper was impracticable. The fact that in this disease the injection of small quantities of human serum or of human blood subcutaneously or into muscles had very greatly improved the prognosis showed that in such cases, at any rate, the result obtained was attributable to something more than mere replacement of the lost blood.

Dr. NEWTON PITT said that it would be useful to determine which were the best methods, and to correlate results obtained in different diseases. It was open to argument whether the transfusion of citrated blood in gastric ulcer might not increase the liability to haemorrhage. In such

cases horse serum alone was sometimes effective. He thought the introduction of the cannula was a great improvement on former technique.

Dr. O. LEYTON replied.

CONGENITAL STENOSIS OF THE PYLORUS.

AT a meeting of the Medical Society of London held on February 24th, the President, Major A. F. VOELCKER, R.A.M.C.(T.), being in the chair, Mr. R. A. RAMSAY read a paper, in the course of which he said that he regarded congenital stenosis of the pylorus as a true hypertrophy, for which operation offered the best prospect of recovery. There were two causes of failure: One, the extent of the wasting when treatment was undertaken, so that the patients were incapable of assimilating food, and were liable to severe or even fatal diarrhoea; the other the liability to death from shock. The duration of the operation must be as short as possible, the abdominal viscera exposed and handled as little as possible, and all manipulations carried out with great gentleness. Having discussed the operation of resection of the hypertrophied pylorus and gastro-enterostomy, he stated that the three remaining operations all aimed at providing an efficient communication between the stomach and the duodenum by re-establishing the natural channel through the pyloric canal. They were: Pyloroplasty with its modifications; dilatation, or rather divulsion of the hypertrophied muscle; and simple incision of the constricting band. Each had an advantage in that the manipulations were limited to the pylorus and adjacent part of the stomach, so that a smaller incision and less disturbance of the parts were required. He discussed the operation of pyloroplasty and Loreta's operation, usually described as dilatation of the stricture, but which actually included rupture of the constricting band, and expressed the opinion that it was preferable to resection and to gastro-enterostomy, in that there was less disturbance of parts, less suturing, and no haemorrhage, so that the duration of the operation was less and the subsequent shock diminished. Rammstedt's operation had very definite advantages; in it the hypertrophied muscle was incised from the peritoneal surface as far as the submucous layer, the mucous membrane being left intact and the stomach not opened. The anatomical result to the pylorus was the same as when rupture of the constriction by dilators was carried out, and depended upon the same details of morbid anatomy—namely, upon the tendency of the divided muscle to widen the incision by its contraction and upon the redundancy of the mucous membrane. He gave a detailed description of the method he had used on three occasions. The anaesthetic used was chloroform followed by open ether; the operation lasted about six or seven minutes, and on return to bed feeding was begun at once. The final result depended upon the degree of wasting present, and therefore the earlier the operation was done the more hope was there of success of the subsequent treatment by suitable feeding. Of his three cases two had died, but in neither instance from the post-operative shock hitherto so frequent and fatal. All three recovered from the effects of the operation and gave evidence of the patency of the pylorus, death occurring in one case after six days from inability to assimilate, and in the other after four and a half weeks from ileo-colitis.

Mr. D'ARCY POWER agreed that pyloroplasty and Loreta's operation were much too long and complicated. It was clear that the earlier the operation was done the better for success. It was important that some agreement should be reached as to the optimum time for surgical treatment.

Mr. TYRRELL GRAY said that he had performed Rammstedt's operation in from fifteen to twenty cases, and agreed that it was the best surgical procedure. All his first four cases recovered. After a phase of disappointing results, they were now much better again and were improving. Results would depend upon the time of the operation and the after-treatment.

Dr. E. CAUTLEY agreed that the surgical results of Rammstedt's operation were good. It should be done as soon as a clear diagnosis was made. He was not satisfied with a diagnosis of hypertrophic stenosis of the pylorus unless a tumour could be felt or the symptoms were very characteristic.

Dr. F. S. LANGMEAD took the view that recovery by medical treatment alone was by no means uncommon, but disagreed with those who deferred operation until too late or opposed surgical treatment in these cases. If an infant of two to three months old when first seen weighed only 6 to 7 lb., it was a case for operation without delay. If the condition was fairly good, medical treatment could be tried, and might prove quite effective. If, after one to two weeks' trial, the weight was stationary or declining, operation should be no longer deferred.

The PRESIDENT said that an analysis of 33 cases under his care did not indicate what were the causes of death, or what determined the degree of wasting. The mortality had been 60 per cent., and no case had been treated surgically. He had hesitated to advise operation, for he could never assure himself that the obstruction at the pylorus was the cause of the wasting. The prognosis depended very much on when the patients came for treatment. Weight was an important factor in prognosis.

Reviews.

THE STUDY OF CHRONIC INTESTINAL STASIS.

MANY years have passed since Sir W. ARBUTHNOT LANE first brought forward his views as to the causation of intestinal stasis and the results it may produce upon other tissues. The third edition of his book was published in 1915, and in the fourth,[1] which has recently appeared, most of the previous work finds a place, supplemented by a series of chapters contributed by other writers who have made special studies in connexion with the subject. It would appear that only a small proportion of the whole is from the pen of the author himself and that this is contained in an explanatory preface and in a certain amount of revision of the earlier papers, written many years ago, but included in the present volume.

Defining chronic intestinal stasis as delay of abnormal character in the passage of food through the gastro-intestinal canal, he argues that the strain thus thrown upon various parts of the intestine may result in adhesions and the formation of obstructive bands along certain definite lines, such adhesions and bands not being of truly inflammatory origin and not present as congenital defects. One of these, frequently found to be a cause of obstruction, situated close to the caecum, has acquired the name of "Lane's kink," more especially in American surgical literature. Similar bands may form about the duodenum and may, by persistent obstruction, give rise to haemorrhage, ulceration, or even to cancerous degeneration. Accompanying these objective changes there is usually a marked degree of mental depression and persistent ill health, frequently associated with chronic arthritic changes in the smaller joints. Relief of the obstructive conditions by a surgical operation has often been followed by immediate improvement in the secondary symptoms. A very large number of such operations have now been performed and in skilled hands have yielded striking results. It has been clearly proved that removal of the greater part of the large intestine by short-circuiting the ileum to the descending colon is not only free from evil results, but in many cases of chronic stasis may be capable of restoring normal health. It is a significant fact that the procedure is most warmly advocated by those who have made special study of the subject and have learnt to recognize the extent of the evil that may be wrought by the constant absorption of morbid products from a sluggish colon.

The new edition, nearly double the size of its forerunner, contains fifteen chapters, nine of which are new. The great bowel is discussed from the anatomist's point of view by Professor Arthur Keith, with especial reference to the formation of the lines of stress and the occurrence of adhesions. The large subject of intoxication and sub-infection as a result of intestinal stasis is worked out by Professor Adami. The effects produced upon the blood and upon the accommodative power of certain muscles are described by Major A. W. Robertson and Mr. Ernest Clarke respectively. Dr. Leonard Williams presents the medical aspects of intestinal stasis in a somewhat lurid light. Drs. Mutch and Jordan, collaborators in previous editions, contribute chapters on microscopic and

[1] *The Operative Treatment of Chronic Intestinal Stasis.* By Sir W. Arbuthnot Lane, Bt., C.B. Fourth edition, revised and enlarged. London: Henry Frowde, and Hodder and Stoughton. 1918. (Med. 8vo, pp. xii + 328; 133 figures. 20s. net.)

æ-ray evidence, while the gynaecological and dental consequences of intestinal stasis are set forth by Mr. Chapple and Mr. Forsyth. The whole book, well printed and illustrated, deserves careful study. It is the outcome of much thought, observation, and experience on the part of experts. Some of the results of the operative treatment which it advocates have been remarkable, but the actual proportion of success and failure is not recorded.

OCCUPATIONAL DISEASES.

So many acute and chronic diseases are connected with various industrial occupations, and so many increasing disabilities of every sort arise therefrom, that the massive textbook on *Diseases of Occupation and Vocational Hygiene*,[2] edited by KOBER and HANSON, may be accepted with gratitude as a work of reference on the problems of industrial organization. The editors contribute a most interesting historical review of the subject as preface to the volume. As all writers must, they begin with Professor Ramazzini of Padua, who wrote the first systematic treatise on diseases of occupation in 1700. It was translated into English and into French a few years later, and was the forerunner of many books in both languages, but particularly in our own.

The volume now before us is so full of facts and figures of importance as to preclude anything like a systematic review in the space at our disposal. It is divided into three sections. The first is mainly medical, and deals with the specific and systemic diseases of occupation, fatigue, and the neuroses; the second section is devoted to the causation and prevention of occupational diseases and accidents, and will repay study by employers and controllers of labour. The third and shortest section gives an account of Professor Devoto's clinic for occupational diseases at Milan, opened ten years ago; it contains statistical and legislational studies in the prevention of these diseases. We commend the book very warmly to all medical practitioners who are concerned with the subject of occupational diseases and their prevention.

NOTES ON BOOKS.

DR. RODDY'S *Medical Bacteriology*[3] is designed to meet the needs of medical students, practitioners, and pharmacists. It is a painstaking piece of work, well illustrated, a little superficial in its treatment, and disfigured with numerous misprints.

Destroyers, and Other Verses[4] is a small collection of short poems by Dr. HENRY HEAD. A few are definitely war poems, and express with much pathos the chagrin experienced by so many at finding themselves too old to serve. But the majority are composed of the imaginative outpourings of Camille Selden, better known in literature as "La Mouche," who was beloved by two poets, and whose friendship solaced the great Heine during the last days of his terrible suffering. In these verses, with their easy musical rhythm, doubtless inspired by the *Buch der Lieder*, Dr. Head displays an intimate knowledge of the human heart, and an insight into the strange fascination which Heine has always possessed for those who are sensitive to "the tears in things." In Seedtime and Harvest the supreme joys of motherhood and charm of infancy are described with delicacy and true feeling. Throughout, the structure of the verses has a pleasing simplicity, and the diction is pure.

[2] *Diseases of Occupation and Vocational Hygiene.* Edited by George M. Kober, M.D., LL.D., Washington, D.C., and William C. Hanson, M.D., Belmont, Mass. London: W. Heinemann (Medical Books), Ltd. 1918. (Med. 8vo, pp. xxi + 918; 46 figures. 32s. net.)

[3] *Medical Bacteriology.* By John A. Roddy, M.D. Philadelphia: P. Blakiston's Son and Co. 1918. (Med. 8vo, pp. xi + 2.5; 46 figures, 8 in colour.)

[4] *Destroyers, and Other Verses.* By Henry Head, M.D., F.R.S. London: Humphrey Milford. 1919. (Fcap. 8vo, pp. 87. 4s. 6d. net.)

EMERGENCY POST-GRADUATE FACILITIES IN LONDON.

THE Fellowship of Medicine has arranged with the medical schools in London and other hospitals for an emergency post-graduate course of three months for qualified medical officers from the R.N., R.A.M.C., and R.A.F., from the Dominions and the United States and Allies, admitting to their general practice, including clinical instruction in the wards and out-patient departments, clinical lectures and demonstrations, *post-mortem* demonstrations, and laboratory work.

The following is a list of the schools and hospitals available and of the special courses already in progress:

Medical School Hospitals.

St. Bartholomew's Hospital.
St. George's Hospital.
Guy's Hospital.
King's College Hospital Medical School.
London Hospital.
London (Royal Free Hospital) School of Medicine for Women.
Middlesex Hospital.
St. Thomas's Hospital.
University College Hospital Medical School.
Westminster Hospital.

Other General Hospitals.

Prince of Wales's General Hospital, Tottenham.
West London Hospital, Hammersmith.

Special Hospitals.

Cancer Hospital.
Chelsea Hospital for Women.
Hospital for Children.
National Hospital for Diseases of the Heart.
National Hospital for the Paralysed and Epileptic.
Queen's Hospital for Children, Hackney Road.
St. Mark's Hospital for Diseases of the Rectum.
St. Peter's Hospital for Urinary Diseases.

Special Courses already in Progress.

King's College Hospital Medical School. January 24th to March 29th.
National Hospital for the Paralysed and Epileptic. February 10th to April 10th.
London (Royal Free Hospital) School of Medicine for Women. Special 14 days' Course. March 15th to 31st: "Medicine and Surgery of Liver and Gall Bladder." May 5th to 16th: "Diseases of the Thyroids and Parathyroids."
West London Post-Graduate College (West London Hospital). February 17th to April 17th.

Special lectures are being arranged also at:

North-East London Post-Graduate College (Prince of Wales's Hospital, Tottenham).
National Hospital for Diseases of the Heart.
Cancer Hospital.

Tickets for the whole course, or for one or two months, at the rate of £3 10s. for each month, can now be obtained from Miss Willis, the Secretary to the Fellowship, who is in attendance daily from 10 a.m. to 5 p.m., and to whom all inquiries can be addressed. The card of membership for any period of the course admits the holder to any, or all, of the hospitals available, including their special courses. Time tables and syllabuses of the various courses and daily programmes are posted in the entrance hall at 1, Wimpole Street.

Arrangements are being made for a definite course of daily lectures and demonstrations in general and special subjects, at the house of the Royal Society of Medicine, 1, Wimpole Street. The honorary secretaries of the Fellowship are Mr. Philip Franklin, F.R.C.S., Mr. J. Y. W. MacAlister, and Mr. Herbert J. Paterson, F.R.C.S.

MOTOR NOTES FOR MEDICAL MEN.

BY H. MASSAC BUIST.

(*Continued from p. 252.*)

RETAILING BENZOL.

A SOMEWHAT odd situation has arisen in connexion with the provision of benzol as an alternative motor fuel. Some of the benzol producers are arguing that the next step rests with the individual consumer. Large quantities are being exported instead of being used in this country. It appears that the difficulty is an old one as far as readers of these columns are concerned—namely, that the distribution problems are acute, drums and tins being particularly scarce, while co-ordination of supply is wanted. Therefore, the Automobile Association has stepped into the breach by arranging that local agents and repairers appointed by it, and who are recognizable by the "A.A." sign outside their establishments, will supply benzol with the aid of that association. It can be bought in fifty-gallon drums and kept in a private garden or outhouse provided it is 20 ft. away from a dwelling place. The Automobile Association will give any inquirer the fullest advice and help. It even goes to the length of arranging that the local A.A. agent will store benzol for the individual user. Further, it has made arrangements for overcoming the difficulty in regard to drums by securing a large number of the fifty-gallon steel variety. The individual member of the association can hire one for a purely nominal fee of 10s. a year. The Automobile Association will explain to individual motorists how to store benzol, how to draw it, and how to use it. It will help the individual motorist's agent to get it for him, and thereby encourage him to extricate himself and the motoring community from the fuel problem. Such work

of the Automobile Association deserves to be widely known in that it comes to the most timely relief of the motorist.

Mass Production Started in England.

In the mean season the work of changing over from war to peace activities proceeds apace. Among the forms of enterprise not formerly exploited in this country is that of mass assembly, the outstanding example of which was provided by the Hudson car made in Detroit. The engines were made by Continental Motors, the gearboxes by specialists in gear cutting, and so on throughout every detail of the chassis.

Meantime, what are we doing in this country? The ranks of the motor car producers have just been augmented by the old coachmaking firm of Sir William Angus, Sanderson, and Co., of Newcastle-on-Tyne, which is taking the initiative in a scheme for the large production of a car built of components by specialists, and to be known as the Angus-Sanderson car; it will be assembled at Newcastle on a programme aiming at six thousand output in the first year, with very rapid acceleration from that period onwards. The components are manufactured in London, the Midlands, and as far north as Glasgow. For example, the nominal 12 h.p. engine is made by Tylor's, while the change speed and axle gearing, front and rear axles and steering gear, together with the brakes and control, are made by Wrigley's of Birmingham; the dynamo, starting motor and five lamps by Lucas of Birmingham; the magneto by Thomson-Bennett of Birmingham; the detachable corrugated disc wheels by Goodyear's of Dudley; the large and extra thick tread non-skid tyres by Wood Milne, Ltd., of Leyland, Preston; the car frames by Mechem and Sons of Glasgow; and the coachwork and entire assembly by Sir William Angus, Sanderson, and Co., Ltd., at Newcastle. The output will be about 130 cars a week, and the market price of the vehicle will be £450, the expectation being that batch production will be in full operation at the beginning of May.

The body is of the kind which, at pre-war costs, as coachmaking was then done, would be worth £150; but it can be produced at considerably less cost to day by pressing out the panels, and so forth. Hydraulic plant for this purpose has been installed, and use is to be made of electric and other effective methods of local welding. The car complete is of light weight, scaling 17 cwt. with full equipment, including five relatively large tyres. It is possible to say, at the moment, that the idea will be that such a vehicle will give an average of thirty miles to the gallon of petrol, and will run with the at present low grade spirit, the intake pipe having a "hot spot" or isolated piece of metal heated by the exhaust, against which the fuel charge impinges. The car features include the combination of the cylinders *en bloc* with the upper part of the crank chamber; specially light pistons of cross head form on the Ricardo system, with hollow gudgeon pin in a floating bearing, the combination weighing 12 oz. as compared with 2 lb. for the average cast-iron piston. An unusual practice is the balancing of the crankshaft by means of counterweights. The future of this four-cylinder car, with a bore measurement of 3 in., a piston travel of 5 in., giving the R.A.C. rating of 13.9 h.p., will be followed with interest by the medical profession.

The Goodyear corrugated disc wheels used are certainly a very clever invention both for simplicity, lightness, strength, and ease of cleaning. I should imagine they would be the lightest type of wheel yet devised of any variety, much stronger than wooden ones, and I look on their evolution as an earnest of what can be done to offset post-war costs by entirely and radically redesigning every car detail on lines as novel as is this in regard to the wheels. This is designing along sound engineering lines and manufacturing methods involving the minimum labour and the maximum use of stampings, which are in every way an improvement on what we have known before, yet enormously cheaper despite the increased costs of labour and therefore of materials. In quantity production it is possible to produce five wheels—that is, four for use and one spare—for a wholesale cost of less than £2 a vehicle. There is no reason why in the course of a few years inventions should not be applied to other portions of the complete chassis equally with this wheel development. Certainly cars will have to be cheaper than they have ever been. It is merely that in the interval we have a very awkward period to negotiate. The average car manufacturer, of course, takes the line of least resistance since his business is to make profits from year to year, also to give as much employment as possible in conjunction with what the public are prepared to pay.

Sundry "Light" Car Propositions.

There are quite a number of post-war "light" cars, but in the main they do not call for detailed consideration. A new comer in this field is the long-established Birmingham concern of Components, Limited, which is to produce a 10 h.p. four-cylinder car with electric starter and lighting set under the direction of the general manager, Mr. J. W. Stocks, who up to the time war broke out was the managing director of the De Dion Bouton business in this country.

Another new make of car is introduced by the firm of Douglas of Kingswood, Bristol, well known in connexion with the motor bicycle business. It had begun experimenting with the light car about the time war broke out, and has spent something like £20,000 testing out its ideas. A number of vehicles have been made and supplied so that they can be run under conditions of private service yet more or less under the direct observations of the proprietors of the business. There are considerable evidences of cycle practice in the vehicle. It has a twin cylinder horizontally opposed engine, which, however, is of the water cooled variety, both bore and stroke measurements being 92 mm., so that it is just short of one and a quarter litre capacity. The engine, clutch, gearbox, and C.A.V. electric starter are combined in a unit, yet it is possible to dismantle any one item separately. Three speeds and a reverse are provided; the gear-shaft is mounted on ball bearings; the live axle is bevel driven; the rear springing is novel, being on the A.F.S. helical suspension scheme, and it is expected that deliveries will begin some time next month in fulfilment of orders that have already been booked. Information about the price is not available yet.

From Bristol also comes an entirely new light car idea in a three-cylinder, radial air-cooled engine, with bore and stroke measurements each of 75 mm., fitted to a vehicle which it is expected will scale 6 cwt. only, though at 2,000 crank-shaft revolutions a minute the engine is calculated to develop 16 brake h.p., which will be transmitted through a three-speed gearbox with shaft drive and spiral bevel back axle which will be without a differential. The manufacturers are the Cosmos Engineering Co., Ltd., which was formerly known as Brazil, Straker and Co., the manufacturers of the Straker-Squire car, of Lodge Causeway, Fishponds, Bristol. The producers regard this as a "stepping stone" type of car for those who want more than a motor cycle and side car, but who cannot afford the post-war costs of a car proper. Fuller information, however, will be needed by medical men, concerning the performance of this and sundry other new types of cars in the hands of the public before they will be justified in buying for absolute reliability in daily service such relatively recent propositions.

Dispensing with the Differential.

A.B.C. Motors also contemplate the production of a light car. It will be a friction-driven vehicle, with a four-speed and reverse gearbox and bevel-driven back axle. The gearbox details follow closely those of the A.B.C. motor cycle, but it will not be combined with the engine unit, the crank case being, instead, placed midway in the chassis. The conventional differential gear is dispensed with in the case of the back axle, which is undivided, the shaft passing from end to end of it and not being halved in the middle. There is one ball-bearing at either end of the shaft and one in the centre close to the bevel pinion, an arrangement which relieves the axle casing of so much load as to enable it to be die-cast out of aluminium. A frictionless damping device is incorporated, preventing the wheel from spinning unless there is very considerable difference between the torques of the two wheels. This light car proposition, dispensing with differential gear, is of theoretical interest in that in the case of an ordinary differential as soon as one wheel is free to spin there is no drive on the other, which explains why in those circumstances most cars are unable to start off soft ground. Indeed, a car without, is less liable to slip than one with a differential—a point that has been demonstrated several times in car racing; how these details will apply to standard practice in the hands of the public is, of course, among the new experiences

that will be gained after the war. Quarter elliptic springs are used fore and aft on the A.B.C. car, the back pair being fitted with subsidiary torque leaves. No shackles or other moving parts that need lubrication are furnished in connexion with the springs. A novelty in connexion with the steering gear is that there is no worm. It consists only of two spur wheels mounted on ball bearings, the smaller one being at the end of the steering column and meshing with the larger one, which is mounted on the arm that actuates the timing rod. Both wheels can be removed and reset so as to present new sections for engagement.

SOME OTHER CARS.

The 11.9 h.p. H.E. light car, planned to have a four-cylinder engine of 69 mm. bore by 120 mm. piston travel, dry plate clutch, four-speed gearbox and overhead worm-drive, does not fall to be discussed at the moment, in that it is still rather in the paper stage. Moreover, its sponsors, the Herbert Engineering Company, of Caversham, Reading, are not aiming at any notable mechanical novelty, or at cutting price.

The G.W.K. is a distinctive type of light car which was familiar for years before the war, and which will make its reappearance in a greatly developed form, though it presents the outward characteristics of more or less ordinary car practice. Nevertheless, the drive by friction discs will be retained. In order to obtain the reduction between the steering wheel and steering arm motion, a type of planetary gearing is placed at the base of the steering column. The pedals are now adjustable. The four-seater model has the engine placed under the bonnet in the orthodox way. The wheels are built on the disc principle, totally enclosing the drive of the rear pair both inside and out, thus facilitating washing. The wheels themselves are not detachable, but the rims can be taken off.

Another type of car that is driven by discs instead of through the ordinary gearbox is the Palladium, the post-war model of which is equipped with a two-cylinder, flat engine of 89 mm. bore by 107 mm. piston travel. The vehicle is made as a two and a four seater, and the aim is to sell it at under £200. It is expected that the first examples will be ready some time in June.

A new light car is to be made in Coventry by a concern called the Dawson Car Co., which has the benefit of the services of Mr. A. J. Dawson, who has been identified with the Daimler, Hotchkiss, and Hillman companies for the past fourteen years. The vehicle will be of 11.9 h.p. Treasury rating, having a bore measurement of 69 mm. and a piston travel of 120 mm., the comparative novelty, for this form of machine, being that tungsten alloy overhead valves will be employed. The equipment will include electric starter and dynamo, and the chassis will be more or less on orthodox lines. The notion of supplying the vehicle complete for a fixed sum, however, is adequate, in that a clock and speedometer are to be included. So far, six vehicles only have been produced.

(To be continued.)

SCHOOLS OF INSTRUCTION FOR THE SERVICES.

BY CUTHBERT WALLACE, C.B., C.M.G., F.R.C.S.

PRACTICE makes perfect; indeed, practice is needed to maintain even a mediocre standard in any profession. It does not matter how good an individual may be in any particular line when you first take him. Unless you provide him the opportunity of practising fully his profession, in a few years he will not only have failed to maintain the position whence he started, but it is possible that he will be at a lower level than that at which he commenced. While it can be admitted that the level at which a man starts makes a great difference in the service to which he is attached, it is not only the obtaining of the man of high average that is required, but there is the need to keep him up in his work. The necessity for obtaining good men has been recognized by all the public medical services of late. Unfortunately, to get them they have entered into a rather unseemly competition one with another, offering a few more shillings here and there to obtain what they want. On the other hand, one can only commend the efforts that have been made to get good men, as, for instance, by seconding a man while he is holding a house appointment and giving specialist pay. More, however, is wanted. In the Services men have to be dispersed and go over the world. One man will be in a good station where he will have plenty of work and will use his opportunities; the second will be in a place where, for no fault of his own, he cannot keep himself up to a proper level by practice; and there is a third man, more important possibly than the others, who does not care so much about his profession as about the opportunities the Services offer of seeing the world. Now all these men at some time or another will come home and require periods of study. The keen man must be given ample opportunities of bringing himself up to date, and the less keen man must be compelled to make himself efficient. This is already provided for to a certain degree in the hospitals of the Services, and by the classes that are held at the various metropolitan hospitals. The training and instruction in such things as public health and tropical diseases, and laboratory work, are sufficient and reach a high standard. The opportunities for clinical study in the hospitals of the Services are largely limited to that afforded by young males. There may be some difference of opinion as to whether the courses which are given in the metropolitan hospitals are satisfactory. It very much depends upon whether certain hospitals can make the necessary arrangements for ward teaching and special classes; the opportunities must vary from year to year. This teaching is more or less of a post-graduate nature, but it is most probable, even if it be granted that the post-graduate training is good, that many of the officers would gain much more if they first went through a course of training such as senior students follow as clerks and dressers. The opportunities for this are not available in London, and most probably will not be available in any teaching school.

Could not some improvement be made in the courses so as to enable men in the Services to get a more intimate knowledge of disease? Now if a man is to learn medicine properly he must go back to a school where all branches of medicine are taught. Therefore it is necessary that the Services should possess general hospitals of their own, where every kind of disease is encountered and treated. The present seems a grand opportunity for the Services acquiring in different parts of the country these general hospitals. It is obvious that hospital accommodation must be extended. It is most probable that the Poor Law hospitals and infirmaries will become active working hospitals. Why should not the different Services take over some of these, staff them with their own men, run them as a hospital and as their medical school? It might be said that the Services so far have produced no conspicuous teachers in the ordinary subjects of medicine and surgery, but the reply to this is that they have never tried to, and they have never given their men an opportunity of fitting themselves for such a post. That the men exist or could be got is proved by the fact that in preventive medicine, pathology, and tropical medicine the Services have produced men of world-wide renown, and there is no reason to doubt that if opportunities for the practice of medicine and surgery were afforded, as great men in medicine and surgery would arise.

Now, how would this scheme work? There would be a general hospital, staffed by professors, officers of the Services, heads of their own departments; the hospital would be complete. When officers come back from foreign service and require refresher courses there would be splendid opportunities of acquiring knowledge open to them. The younger men or the men who have been longest away could enter the wards as the professors' dressers and clerks, while the older and more senior men, men who have been practising medicine or surgery in foreign parts, could as assistants to the professors gain the knowledge they require. The opportunities which would thus be offered would be infinitely greater than those existing at present, and it is only by a man getting down to his work that he will ever really learn. To raise the professor it will have to be recognized in the Services that a man who wishes to stick to his last and practise his profession should have as great advantages as those which follow the course of administration. If this is granted and such a hospital comes into existence, it will mean that the Services will have professors of whom the country and they can be proud, and they will have schools where their men can be properly and adequately taught. After passing the college the post-graduate instruction in the teaching school will still be available for the specialist.

British Medical Journal.

SATURDAY, MARCH 8TH, 1919.

THE SELECTION OF RESEARCH WORKERS.

In a recent issue we attempted to define the characteristics of research workers and the general type of State organization best fitted to encourage the prosecution of scientific research in this country. At present we shall comment upon a special aspect of the subject which is of some practical importance.

It is commonly held that general ability will command success in any line of life, a proposition illustrated by the laurels gained in externally diverse careers by the scions of gifted stocks recorded in many of Galton's writings. How far a fund of "general ability" is capable of diversion to scientific research, whether some special quality akin to the artistic sense be not involved, we need not seek to determine. But it is necessary to remark that, merely as a career, the life of a research worker can never offer the material attractions, the pomps and vanities of the world, which reward the efforts of a successful barrister, soldier, or even a physician. We may indeed hope for some raising of the low standard of public morality—to which Sir Ronald Ross has so properly drawn attention in the past—in accordance with which men of science are expected, as a matter of course, to place their knowledge at the disposal of the State without reward, while lawyers and business men receive, equally as a matter of course, large honoraria. But we need not flatter ourselves that the President of the Royal Society will ever fill so large a space in the eyes of his contemporaries as a Lord Chancellor or an Archbishop. It is therefore certain that the able man to whom popular esteem and immediate power are sweet will not be tempted to forsake the beaten tracks by any salaries a state research organization will have to offer. The man of science will always be able to say, with Burke, "I know the map of England as well as the noble lord, or as any other person, and I know the way I take is not the road to preferment."

But, on the other hand, the very disadvantages of the life, from the standpoint of the more energetic and ambitious man of ability, are attractions to the "safe" man, the unadventurous plodder. To him the prospect of being a researcher in a state department offers the security of the civil service with that faint gratification of intellectual vanity which being dubbed an "expert" conveys to most men. A national endowment of research ought not to mean a provision of incomes for the laboriously dull, and it is well to consider how this evident risk is to be avoided.

The best of all safeguards is to allow the greater part of the work to be done in the universities. No rule is without exceptions; charm of manner, social virtues, bias the estimate of intellectual ability in all classes; but the opinion of contemporaries engaged in similar but not identical pursuits, and brought into intimate personal contact with the investigator either as colleagues or pupils, is the soundest criterion we have of merit; this test is applicable hardly anywhere but in a university. When we add that no scientific teaching worthy of the name is possible without the stimulus of research, of contact with truth not yet crystallized, and that an inadequate grasp of scientific method, as distinct from mere technical facility, characterizes many of our younger graduates, the case for distributing the endowment of research over as wide a field as possible becomes overwhelming.

But the fact still remains that, in any national system, room must be found for laboratories or institutes which are not appanages of independent corporations. Some researches will involve the use of special apparatus which may not be required permanently in any one university; or, again, some classes of inquiry might be important in the general interest of research but ill calculated to attract continuously the same investigators. To take an illustration: the development of research into human nutrition implies the existence somewhere of a well stocked and staffed special library, of a clearing house of statistical information, and of such laboratory accommodation as would suffice for the training of field workers, and the carrying out of some routine standardizing tests.

This establishment would perform a common service for all the universities; it would be invidious to locate it in any one of them, and desirable to establish it in the metropolis. The same remark applies to other main branches of scientific research. But, directly this is admitted, we have again the problem of the mediocrities eager for permanent posts. We think the research organizer might profit by the example of the army. The permanent staffs of the central laboratories or institutes should be confined to very small dimensions, perhaps to one or two persons in each case—apart from the merely clerical staff—and the bulk of the work be undertaken by investigators seconded from the universities. In other words, the central departments might be treated as staff colleges, those working in them being compulsorily returnable to the universities after a longer or shorter period. Were this plan carried out the new State departments could not become homes of mediocrity, nor would the schools be robbed of their best investigators. Such a system would also provide for the case of the unattached worker, not swept up in the university net, and although we may expect, with the development of university education, that these cases will be rare, there are likely to be sufficient in this generation to need special machinery.

GRADUATE INSTRUCTION IN LONDON.

Sir Wilmot Herringham's second contribution to the *St. Bartholomew's Hospital Journal* on medical education in London deals with "post-graduate study." To the first, in which he advocated the introduction of the professorial system, we drew attention on February 15th. The second article is less convincing, no doubt for the reason that the subject is more difficult to handle with confidence, because probably in England generally, certainly in London, the organization has to be built from the foundations.

He starts by affirming that post-graduate instruction in London is "hopelessly deficient." No one, we imagine, will dispute this, nor his opinion that "its extension is greatly to be desired." By way of finding out what it is that London wants, he enumerates the attractions Vienna, and afterwards Berlin, possessed when they were drawing medical graduates from all over the world. He notes, first, the coaching or revision classes given by teachers of the privat-dozent type—that is, by men with their foot on the first rung of the ladder leading to the professorial chair. A second attraction was afforded by the

opportunities for gaining facility in the use of the laryngoscope, otoscope, ophthalmoscope, and other clinical instruments. A third was the possibility of obtaining appointment as assistant to a professor of surgery, thereby gaining a large experience in operations. A fourth attraction was the chance of obtaining a place in a professor's laboratory, where the actual work given to the novice might be very monotonous, but where he had the run of the laboratory and learned the methodical system of work for which the German was justly famed. A fifth attraction was that the professors had taken the trouble to learn to lecture, although they never attained the excellence of the French. Sir Wilmot Herringham declares that in London—perhaps he means St. Bartholomew's—he has heard lecturers not fit to talk to the parish pump.

So much for our defects. Our guide becomes less surefooted when it comes to the remedies. He asserts that general hospital schools are not the places for graduate teaching, though he believes that if professorial units are established a stranger with proper credentials might have a good chance of obtaining a place as assistant in a clinical or pathological laboratory. Coaching classes, which practically do not exist in London, though not a high, are, he considers, a useful form of education for a man with a limited time in which to rub up his knowledge in some particular subject. He suggests also that resident medical officers, registrars, and even assistant physicians, ought to be allowed to hold such classes in the hospital buildings. He, however, relies for the establishment of post-graduate teaching in London on the special hospitals.

To elucidate this point we may make a brief excursion into history. The motives which inspired the founders of special hospitals were not always the same. In the case of the maternity hospitals, of which three in London and several in the provinces date from the middle of the eighteenth century, they were doubtless purely benevolent. In the majority of instances special hospitals owed their origin to the efforts of medical men, of whom some had no place on the staff of a general hospital but wanted the experience hospital practice can alone provide, while others, though on the staffs of general hospitals, desired a concentration of patients of a particular kind permitting study of the special department in which they were interested. Ophthalmology was the first specialism to establish itself in this way—at Moorfields in 1804, at Manchester in 1814, at the Westminster near Charing Cross in 1816, at Liverpool in 1820, and at Newcastle in 1822. The great seed time of the special hospitals was the middle of the nineteenth century, when specialism was disdainfully regarded by most teachers in the medical schools. A great change in attitude has occurred during the last generation. Something was due to the public who insisted on having specialists, but the chief reason was the growing complexity of every department, so that no man could any longer pretend to be expert in them all. Thus we now find all large general hospitals with special departments, and the Royal Society of Medicine with thirteen special sections. If the school hospitals had been quicker to realize what was happening the demand for the special treatment special hospitals have given might have been satisfied. Whether this would have been good for the progress of medicine is a matter upon which opinions may differ, but it would undoubtedly have simplified the position to-day, for one effect of the recognition of the need for specialization in practice has been that the chief special hospitals are now largely staffed by men who are members also of the staff of a school hospital. It is to call attention to this that we have digressed, for it affects Sir Wilmot Herringham's argument.

The view that general hospital schools are not the places for graduate teaching used to be very generally held, but it would appear that it does not now meet with so much acceptance. In making plans for the post-graduate courses which are about to be resumed in Edinburgh the committee has arranged to pool the hospital resources. The courses will be held at the Royal Infirmary, the Royal Hospital for Sick Children, the Royal Victoria Dispensary for Tuberculosis, and the Royal Maternity Hospital, and the members will hold temporary appointments as assistant demonstrators in the practical courses, and as clinical assistants in the wards and special departments. We observe also that in the emergency facilities provided in London through the Fellowship of Medicine (p. 281) all the medical school hospitals are included as well as a like number of special hospitals. It is an open secret that a scheme for graduate medical education on a permanent footing in London has been under consideration for some years, and we understand that at a recent meeting it was approved in principle and returned to the individual bodies for their sanction. We hope to publish the scheme shortly, but meanwhile it will be sufficient for our purpose to say that it rests upon graduate medical instruction given in the existing London undergraduate medical schools. The instruction offered will include general courses and special courses, but by the latter, we understand, not courses in specialties as ordinarily defined, but in certain classes of disease, of which disorders of digestion may be given as an example. After attending such a special course the graduate would be eligible for research work in the subject or to hold a post as clinical assistant. The last point is taken also by Sir Wilmot Herringham, and if the suggestion is not without precedent the plan has not hitherto commonly been carried out. Some, indeed, are so strongly impressed with the necessity of opening clinical appointments in London to stranger graduates that they would favour the establishment of a special graduates' hospital, at which all the resident and junior appointments would be held by the visitors to London. The idea is contained in a very interesting note by Mr. Cuthbert Wallace on "Schools of Instruction for the Services," which we publish at p. 283. The need is no doubt greater in the military services and those of the Crown Colonies, but it is felt also by men who have gone early into practice in districts in this country where opportunities for seeing hospital work are not easily obtained.

We should like to see these three points more fully considered—namely, the desirability of arranging graduate courses at teaching hospitals, the best way of utilizing special hospitals, and the opening of clinical appointments to graduates. Sir Wilmot Herringham mentions the need for organization, but dismisses the subject rather airily. It has, we understand, engaged the very serious attention of those concerned in promoting the establishment of a permanent organization in London to provide a system of instruction for medical graduates. We believe that the conclusion reached is that the proposed graduates' association will need a building in central London, containing offices for the secretarial staff, a library, and recreation and luncheon rooms. At this centre the business of the proposed permanent association would be conducted, fees would be received and paid, and information supplied to graduates attending or desiring to attend the courses. To

establish such a central institute a considerable sum of money will be required, but it seems to be thought probable that this will be found.

THE MINISTRY OF HEALTH BILL IN GRAND COMMITTEE.

CONSIDERATION of the Ministry of Health Bill in Grand Committee of the House of Commons will begin next Tuesday, and will be continued as circumstances allow. Sir Archibald Williamson will be chairman, and among the medical members attached for this bill are Sir Watson Cheyne, Sir William Whitla, Sir R. Woods, Lieut.-Colonel Nathan Raw, and Major A. C. Farquharson. The usual course is for the chairman to take the decision of the Committee at its first meeting as to the number of sittings to be held during each week until the work is completed—that is, until the bill is ready to be reported to the House. Under the new scheme of procedure for accelerating the progress of urgent legislation this Committee (and other Grand Committees) may carry proceedings far into the afternoon. The procedure scheme, indeed, provides that the sittings of the House may be suspended if they be found incompatible with the simultaneous progress of several Grand Committees on various bills, but this suspension will not come into force until after notice has been given in the House; Mr. Bonar Law, however, has expressed the hope that such a course may be unnecessary. The intention is that bills shall be advanced through Grand Committees as quickly as is reasonably possible, even if the old practice of the House in the conduct of its business has to be varied. It is hardly necessary to point out that a bill will have the consideration of the whole House on report, and that amendments of detail can be submitted there by legislators who have not served on the Grand Committee.

DISCUSSION OF THE MINISTRY OF HEALTH BILL.

A MEETING arranged by the Marylebone Division of the British Medical Association to discuss the Ministry of Health and the attitude of the medical profession in relation thereto, will be held at the house of the Medical Society of London, 11, Chandos Street, Cavendish Square, on Wednesday next, March 12th, at 5 p.m. The chair will be taken by Major McAdam Eccles, and the discussion, which it is intended shall be informal, will be opened by Major-General Sir Bertrand Dawson, G.C.V.O., M.D. All members of the medical profession are invited to attend. The Society of Medical Officers of Health has issued a memorandum criticizing the inclusion in the Ministry of matters outside the scope of national health, and the omission of others which properly come within it. Under the first head it objects to the inclusion of the powers and duties of the Insurance Commissioners not strictly relative to health; under the second it criticizes the failure to transfer the powers of the Board of Education as to inspection and treatment of school children and young persons, of the Ministry of Pensions with respect to the health of disabled soldiers, and the powers of the Home Secretary under the Lunacy Acts and the Mental Deficiency Act. It also desires the inclusion of the Home Office responsibilities with regard to the sanitary condition of factories, the prevention of industrial diseases, the work of factory surgeons, and the Inebriates Act; those of the Board of Trade as to the health of seamen and emigrants, those of the Board of Agriculture touching dairy and farm produce, and those of the Privy Council as regards the General Medical Council and the Pharmaceutical Society.

DENTAL TREATMENT AND THE SHORTAGE OF DENTISTS.

WE gave last week an account of the recommendations of the Departmental Committee appointed by the Lord President of the Council to inquire into the extent and gravity of the evils of dental practice by persons not qualified under the Dentists Act. The report includes certain recommendations of general interest to the profession, but for the moment it is only possible to touch upon a few salient points. After holding twenty-seven sittings, hearing twenty-seven witnesses, among whom were Professor Sidney Webb and Mr. W. C. Anderson, a labour M.P., and considering a large mass of documentary evidence, the Committee unanimously came to the conclusion that no effective remedy could be found for the gross abuses which had crept in short of the complete prohibition of practice by unregistered persons. This conclusion gains in significance when the constitution of the Committee is examined, for as to one half it consisted of lay members, and there were not wanting upon it some whose known general opinions render it a fair inference that they would need to be convinced by cogent evidence before recommending such a step. The conclusion is gratifying to us, inasmuch as for years past we have consistently urged that prohibition of practice rather than mere restriction of the use of titles is the only logical course to be taken in medical or dental legislation; in its adoption we lag far behind the majority of the British Dominions and of foreign countries. But in making this recommendation the Committee was faced with the difficulty that Parliament could not be asked to make this departure from British precedents unless a number of registered dentists adequate to meet the requirements of the entire population either existed or could speedily be provided. It was abundantly clear that the existing *Dentists' Register* did not afford a sufficient number; it became inevitable, therefore, to advise the inclusion in a *Register* of some at least of those who had, without breaking the letter of the law, engaged in practice without any qualification. Apart from the undeniable fact that under the present state of the law these persons had acquired vested interests, it was thought that by requiring that they should have been in practice for five years some measure of competence would probably be secured, and that the recognition of these men combined with the closing of the door against future irregularities was a desirable compromise. To a certain extent, no doubt, this is setting the clock back, but when the Dentists Act was passed in 1878 all persons then in practice—and the claims of some of them to being in practice were of the most shadowy description—were admitted without the imposition of any limit of time. Even apprentices obtained admission to the *Dentists' Register* under the conditions then laid down—a very different thing from a five years' experience, whatever its exact nature. Into sundry provisions for opening an easier road for persons connected with practice without fully satisfying the five year requirement we need not enter, but it was recommended that, coincidently with the closing of the door, there should be a large extension of public dental services—a matter already in the air—so that dental treatment should be available to all. And further, that scholarships should be provided from public funds to enable those who could not otherwise have afforded it to take the education prescribed. The Committee recommended that a new Statutory Board should be set up to administer any Act drafted on the lines of the report. The majority of members of this board should be dentists, but it is a sign of the times that a certain lay representation upon it is to be secured, partly on the ground that the Act being for the public weal, the public should be represented upon any body formed for its administration. Whilst self-government of the profession is thus provided, a measure of control is to be left in the hands of the General Medical Council. Many other matters of general interest, such as the conduct of practice by limited liability companies, length of curriculum, etc., are dealt with, to some of which we may recur at a future time. The next step lies with the Government. It is hoped that Lord Curzon will introduce a bill or that the Government will at the least give to a bill their wholehearted support, without which, in these days, the prospect of success in Parliament is small.

THE UNIVERSITIES AND THE EXCHEQUER.

WE are indebted to the Universities Bureau of the British Empire (Imperial Institute, S.W.7) through its secretary, Dr. Alex Hill, for a full authorized report of the speeches made when a representative deputation from the British Universities and University Colleges was received by the Chancellor of the Exchequer and the President of the Board of Education last November. The Exchequer grants for colleges and medical schools in England and Wales have recently amounted to £300,000 a year, and the main object of the deputation was to represent the need for Parliamentary grants on a much more generous scale. Sir Oliver Lodge said that the State grants in America to each of five universities equalled £300,000, and ranged up to £500,000 a year. The income of each of seventeen universities in the United States was over half a million sterling, and in one case was one million and a third. The total income of all the universities in the British Isles, including Oxford and Cambridge, was estimated at 2 millions; in America the estimate was 20 millions. One of the main reasons given for an increased grant was the necessity of raising the salaries of professors and teachers. As Sir Alfred Dale said, the professor should be set free as far as possible from the burden of excessive anxiety on the one hand, and the strain of excessive work on the other. What is true of him is true of the members of the assistant staff, who should be growing up to hold higher positions. At present the junior staff are underpaid, overworked in routine teaching, and therefore deterred from research. Sir Bertrand Dawson put forward the claims of medical education, which, he said, for years had been inadequate, because starved. The sciences on which medicine rests, he pointed out, have been growing in number and extent every year, needing a larger and increasingly skilled staff. Each new discovery added to the expense of teaching medicine, and so made it more dependent on outside financial aid. As an instance he took abdominal disease. Formerly investigation would be limited to clinical examination; now it was necessary to examine the blood and excreta, electrical instruments were needed for accurate investigation and a radiographic department for other observations. In other words, the staff and equipment required to investigate and teach had been multiplied by three, and in a few years the chemist would come into his own, and then the staff would be multiplied by four. The wonder really was that medical education in this country was so good. Among the doctors in this country there were talent, originality, ability to teach, and devotion to high ideals, equal to all countries, and beyond most. The English system of teaching medicine was fundamentally the best, but the teachers were inadequate in number, either underpaid or not paid at all, and devoid of proper equipment. The Chancellor of the Exchequer made a sympathetic but non-committal speech. He, however, assured the deputation that the attitude of mind embodied by Mr. Gladstone, which Mr. Acland had described in a letter read at the beginning of the interview, had passed away, and that he entirely agreed with the view that money judiciously spent by the state on education would be repaid. One specific statement he did make: it was that unless the salaries paid by the universities were sufficient to enable men to devote themselves to their work without anxiety over money their usefulness would be greatly hampered. But he added that while the Government realized the importance of university work, it was subject to other demands and other considerations. Still such proposals as were put forward by the President of the Board of Education would be considered by the Government at least sympathetically. Mr. Bonar Law made no statement on the point whether grants should be made for capital expenditure as well as for upkeep, and Mr. Fisher, in his brief reply, was equally reticent, though he spoke of the necessity of much more liberal assistance from the State to the higher learning in this country. The principle that medical education is included in this definition has been recognized by the Board of Education for the last ten years at least, and the grants it makes to medical schools have increased in number, though the amounts have remained very small. We hope, not without some good grounds, that one result of the deputation and of the views on medical education in London officially expressed in the recent *Memorandum* of the Board, will be the grant by Parliament of financial assistance on a scale which will enable the medical schools to recapture the position as a medical centre which London is entitled to hold.

THE RED CROSS IN PEACE.

INTERNATIONAL Red Cross societies are organized for war work, but it needs no argument to establish the proposition that they could do a great deal of useful, and indeed essential, work in peace. A committee of the Red Cross societies of the United States, France, Great Britain, Italy, and Japan, has been formed, with Mr. Henry Davison, of the American Red Cross, as chairman. At the request of this committee, the International Red Cross at Geneva has summoned a conference of the Red Cross organizations of the world, to meet at Geneva thirty days after the declaration of peace, "to formulate and to propose to the Red Cross societies of the world an extended programme of Red Cross activities in the interest of humanity." We learn from the *Times* that in an address to the international press representatives in Paris, Mr. Davison stated that it was expected that from this conference would emerge an international organization with a very wide scope, so wide indeed that it would include all kinds of public health activities. A preliminary meeting is to be held shortly at Cannes to formulate a programme to be submitted to the conference in Geneva. The criticism which occurs is that an attempt may be made to do too much. Sir Arthur Lawley, speaking for the British Red Cross Society, agreed that it was desirable to broaden the base on which the whole structure of Red Cross activities has been built up, and to retain the services of those voluntary workers who have in such a wonderful spirit of self-sacrifice worked for the Red Cross during the war.

THE FUTURE STANDING ARMY.

THE white paper issued last week, in anticipation of the introduction of the army estimates by the Secretary of State for War on March 3rd, stated that it was estimated that the maximum number of troops of the British Empire, including all Dominion and Indian troops, other than those in the Dominions and in India, serving with the colours on and after March 31st, 1919, would be 2,500,000. The total would be in process of reduction and should fall rapidly to the minimum of 952,000. Of the grand total 127,000 belong to the Indian army. The distribution of the troops is also shown. In the Army of the Rhine, including troops in France and Belgium, there were 403,600; in Italy, 10,600; in Bulgaria, Turkey, and the Caucasus, 100,500; in Egypt and Palestine, 103,000; in Mesopotamia and Northern Persia, 94,300; in the home and colonial establishments, including troops in Russia, 240,000. Troops belonging to the Indian army appeared to be serving only in the near East, Egypt and Palestine, and Mesopotamia and Northern Persia. The white paper states that until the size and organization of the future army have been settled it is not possible to give details of establishment by arms of the service, units and ranks. Mr. Churchill stated, in answer to a question on March 4th, that at the present time the proportion of medical officers in the army was 1 to 314 of all ranks. In October, 1918, as stated last week, the number of medical officers serving was 13,152; but in the table then published (p. 257) there was an error, due

to the fact that the words "and T." were inadvertently displaced into association with the Territorial Force. Officers with temporary commissions were included in the return of regular officers. The figures should have been given as follows:

	August, 1914.	October, 1918.
Regular and T.	1,279	10,289
T.F.	1,889	2,863
Total	3,168	13,152

A similar error was made with regard to other ranks.

THE EPIDEMIC OF INFLUENZA.

FOR the week ending March 1st, 3,850 deaths from influenza were returned from the ninety-six great towns, an increase of 804 deaths upon the figures of the previous week. The deaths in London were 808, an increase of 155. In the North of England, Newcastle has passed its maximum, the deaths having fallen from 163 to 94; Liverpool is nearly stationary, 196 deaths as compared with 188; Manchester, Salford, and Leeds with 196, 96, and 130 (the previous week's figures were 130, 57, 82) are still increasing. In the Midlands, Leicester reports a substantial decline (from 61 to 20), Nottingham and Derby small rises (an increase of 10 in Nottingham and of 8 in Derby), and Birmingham a substantial increase, from 84 to 138. Portsmouth is the only city in the south recording a substantial increase (from 41 to 64). It appears that both in the great towns as a whole, and in London in particular, the rate of increase is diminishing. Thus, expressing each week's deaths as a percentage of those recorded in the previous week, beginning with the week ending February 8th, we have for the great towns 222, 226, 223, 126, and for London 171, 276, 239, 124. The inference is that we are nearing the maximum, and that a decline next week is not improbable. If so, the third wave of the epidemic has, fortunately, not nearly attained the height of its predecessor, nor even the more modest proportions suggested by a comparison of the first two weeks of its progress. It remains to be seen whether the decline will be complete.

DR. JOHN C. MCVAIL will deliver the Milroy Lectures before the Royal College of Physicians of London on March 13th, 18th, and 20th; his subject is half a century of small-pox and vaccination. The Goulstonian Lectures, on the spread of bacterial infection, will be delivered on March 25th, 27th, and April 1st, by Dr. W. W. C. Topley, lecturer on bacteriology Charing Cross Medical School. The Lumleian Lectures, by Sir Humphry D. Rolleston, K.C.B., M.D., on cerebro-spinal fever, will be delivered on April 3rd, 8th, and 10th. The lectures will be given at the College, Pall Mall East, at 5 p.m. on each day.

Medical Notes in Parliament.

Number of Army Medical Officers and Nurses.—In answer to Mr. Lyle, on March 4th, Mr. Churchill stated that there were 11,193 doctors and 23,931 nurses employed in the army on November 11th, 1918, and there were serving at the present time 9,593 doctors and 20,141 nurses. The proportion of doctors in November was 1 to 318 all ranks, and is now 1 to 314 all ranks. The proportion of nurses in November was 1 to 148 all ranks, and is now 1 to 149 all ranks. The demobilization of doctors and nurses bore little relation to the demobilization of the army as a whole; it was dependent, at the bases and at home, on the discharge of the hospital population and, in the field, upon reduction of units and formations. A very large number of civil doctors and nurses who were employed in the voluntary aid detachment hospitals now closed and had been released, were not included in the figures given. He was not at all satisfied with the rate at which demobilization of doctors was proceeding, and had given very strong orders that all efforts should be made to demobilize doctors at an increasing rate to make sure, now that the fighting was stopped, that there were not a great number of medical men waiting abroad who were more urgently needed at home, especially in view of the epidemic of influenza.

Diminishing Number of Panel Doctors.—Major Astor, in a written reply to Sir Kingsley Wood, on March 4th, said he was unaware of any case in which an insurance practitioner had a list of over 6,000 insured persons for whose treatment he was responsible single-handed. Preliminary discussions with representatives of the medical profession preparatory to a general revision of the conditions of medical services for the insured had been taking place for some time. The authority for the payment of the £250,000 bonus which the Insurance Commissioners had agreed to give to the doctors on the panel list was given under the Appropriation Act. The payments now being made were in respect of the calendar year 1918 only. No undertaking had yet been given that similar payments would be made for the year 1919, but financial provision for that contingency would be proposed in the Parliamentary estimates for 1919-20. There had been a continuous diminution in the number of panel doctors since the beginning of the war, but it must be remembered that, besides the large numbers of insurance doctors serving with the forces, the normal diminution of doctors by age, retirements from practice, and by deaths during the five years had not (as in peace time) been made good by new entrants, because newly qualified doctors have been taken into the military forces throughout the period. It was believed that the number of doctors actually carrying on insurance practice in England on October 1st, 1918, was some 3,800 less than at the end of 1914. Within the last few days his department had had further conference with the Ministry of National Service, which was in communication with the War Office. The steps to expedite the release of doctors from the army had been stated by the Secretary of State.

National Insurance: Medical Allowances.—In a written answer, on February 26th, to Mr. Kenyon, Major Astor said that the war allowances made to medical officers of institutions approved under the National Insurance Acts depended upon two factors only. These were: the amount of the individual practitioner's professional income and the rural or semi-rural nature of the area in which his practice lay, as affecting the amount of travelling involved.

Local Government Board and Army Medical Officers.—Major Astor stated on February 27th, on a question by Brigadier-General Croft, that a list was kept at the Local Government Board's offices of medical men who had served in the R.A.M.C. Naval or Air Force Medical Services and who wished to apply for medical employment on the board. Due consideration would be given to such officers when medical appointments were made. Mr. Wardle, in a written reply to Brigadier-General Croft, stated that the Ministry of National Service was responsible for the demobilization of qualified medical men. Their names were registered, and they were informed of opening for Government or for private appointment through the Appointments Department of the Ministry of Labour.

Women Doctors in the Army.—Asked by Mr. Raper whether the Government would support the claim of women doctors serving under or attached to the War Office for the rank and privileges to which they were entitled, Mr. Churchill said, on February 27th, that the general policy of the Government, in seeking to remove inequalities between men and women, did not commit them to immediate action in every sphere, and he was not prepared to introduce legislation on the point during the present session.

Patent Medicine Advertisements.—Sir Henry Norman asked the Home Secretary on February 27th if his attention had been called to the increase of advertisements of patent and proprietary medicines of the classes described as contrary to the public interest by the report of the Select Committee on Patent Medicine, 1914; if a bill to give effect to the recommendations of that committee had been drafted; and if the Government intended to introduce such a bill. Major Astor said that the advertisements referred to as contrary to the public interest in the report of the Select Committee of 1914 were under consideration along with the whole question. By the Venereal Disease Act, 1917, effect was given to the recommendation in paragraph 57 (3) of the report of that committee, that advertisements of medicines and medicaments for the prevention or cure of venereal diseases should be prohibited. The whole question was under consideration.

London Mental Hospitals.—On an appeal by Sir Cyril Cobb on behalf of the London County Council to the War Secretary for the release of three London County Mental Hospitals at Epsom from occupation by military patients, Captain Guest said that the Manor Hospital would be closed from March 15th. Every effort was being made to close the other hospitals as early as possible, but sick were still being returned from France at the rate of a thousand a day. The Maudsley Hospital building was a very busy neurological centre, and so far it had been difficult to reduce its activity. Efforts, however, were being made to find another hospital to which the centre could be removed.

Treatment of Incipient Mental Disorder.—Captain Loseby asked the President of the Local Government Board, on February 27th, if he could encourage county and borough councils, and other local authorities, to supply or aid the supply of homes for the recovery of early and uncertifiable mental cases, and secure that, for the encouragement of voluntary applications, such homes should be kept entirely apart from lunacy administration. Major Astor replied that the matter would be reviewed with cognate questions in connexion with the establishment of a Ministry of Health.

The Training of Disabled Officers and Men.—Mr. Parker, on February 27th, said, in reply to Mr. Pennefather, that the Government scheme for training officers and men of good educational promise would, it was expected, be in full operation by May 1st. It would be possible from an early date to make immediate payment of grants to candidates whose cases were of special urgency. Sir James Craig explained to Lord Henry Cavendish-Bentinck that in the division of training functions between the Ministry of Pensions and the Ministry of Labour, men who still required medical care and attention, or whose disablement was such as to make it undesirable that they should take part in ordinary industrial life—as, for example, the severely disfigured—would be trained by the Ministry of Pensions.

Special Grants for Tuberculosis Treatment.—On the motion for a supplementary grant not exceeding £25,000 for cost of extending sanatorium benefits under the Insurance Act, Major Astor explained that this expenditure was independent of the treatment of ex-soldiers, the cost of which was met by the Ministry of Pensions and through the Insurance Fund. The additional £25,000 meant an additional £50,000, because every point out of the public exchequer was supplemented by one out of local rates. So far as the Treasury was concerned, no limit was put to the amount of money available. The deficiency of accommodation was due to a certain extent to the lack of institutional facilities. At present the Local Government Board was doing all it could to enlarge the accommodation. He did not profess that he was satisfied with the provision now made.

Rabies in Devon and Cornwall.—On February 27th the Parliamentary Secretary to the Board of Agriculture and Fisheries (Sir A. Griffith-Boscawen) made a further statement as to the outbreak of rabies in Devon and Cornwall. The statement that it was introduced into this country by a dog brought by aeroplane was mere rumour; it was far more likely to have been introduced at a port. It began on August 19th, and a case has been reported within the last few days at Yelverton, between Plymouth and Tavistock, so that it could not be hoped that restrictions would be removed for less than six months.

THE WAR.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died on Service.

CAPTAIN J. CAMERON, R.A.M.C.(S.R.).

Captain John Cameron, R.A.M.C.(S.R.), died on February 18th, aged 32. He graduated M.B., Ch.B.Glasg. in 1914, and was gazetted to the R.A.M.C.(S.R.) in April, 1914. While on leave at Glasgow he contracted influenza and pneumonia, which proved fatal after a week's illness. During his training at Aldershot in May, 1914, a heavy ambulance wagon capsized and fell on his knee, which confined him to bed for two months. In March, 1915, he went to France, where he remained near Poperinghe and Ypres for a year as second in command of a field ambulance. He subsequently suffered from duodenal ulcer with melaena, etc., and on recovering was sent to Edinburgh for recruiting purposes, where he acted as president of a board. He was afterwards sent on various duties in different parts of the British Isles, and after the signing of the armistice went to Cherry Hinton Military Hospital, Cambridge, where he took charge of specific cases. He was a man of great ability and enthusiasm.

CAPTAIN A. M. PRYCE, R.A.M.C.

Captain Arthur Meurig Pryce, R.A.M.C., died of bronchopneumonia at No. 35 General Hospital, Calais, on February 21st, aged 41. He was the younger son of the late Rev. Shadrach Pryce, Dean of St. Asaph, and was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1903, and at Middlesex Hospital, also taking the D.P.H. of the London Colleges in 1911. After filling the posts of resident medical officer of the Leeds Consumption Sanatorium, of assistant medical officer of Leeds City Fever Hospital, and of assistant medical officer of health at Leicester, he became demonstrator of bacteriology in Leeds University. He took a temporary commission as lieutenant in the R.A.M.C., in the Welsh Division Field Ambulance, on March 4th, 1916, and was promoted to captain after a year's service.

HONOURS.

A SPECIAL Supplement to the *London Gazette*, dated March 3rd, contains a list of awards and promotions for valuable and distinguished services rendered in connexion with military operations in Mesopotamia. The following medical officers receive the awards indicated:

C.B. (Military Division).

Lieut.-Colonel and Brevet Colonel Matthew H. G. Fell, C.M.G., R.A.M.C.

C.B.E. (Military Division).

Colonel Sebert F. St. D. Green, A.M.S.

Lieut.-Colonel (temporary Colonel) James H. R. Bond, D.S.O., R.A.M.C.

Lieut.-Colonel William B. Lane, C.I.E., I.M.S.

O.B.E. (Military Division).

Major (acting Lieut.-Colonel) George E. Cathcart, R.A.M.C.

Majors: John H. Brunskill, D.S.O., R.A.M.C., Hector L. Howell, M.C., R.A.M.C.

Temporary Major Maitland B. Scott, R.A.M.C.

Captains: Robert A. Chambers, I.M.S., John R. Harris, R.A.M.C.(S.R.), Cuthbert J. H. Little, R.A.M.C., John P. Mitchell, R.A.M.C.(S.R.), John J. H. Nelson, M.C., I.M.S., Cyril J. Penny, R.A.M.C.(S.R.), Hugh G. Robertson, R.A.M.C., Frank T. H. Wood, R.A.M.C.(T.F.).

Temporary Captains: William A. Cardwell, R.A.M.C., Llewellyn W. Davies, R.A.M.C., Gerald H. Davy, R.A.M.C., Gerald S. Marshall, R.A.M.C.

Military Cross.

Captains: Cyril R. Knowles, R.A.M.C.(S.R.), Sidney W. Rintoul, R.A.M.C.(S.R.).

Temporary Captain John A. G. Burton, R.A.M.C.

To be Major-General.

Colonel (temporary Major-General) A. P. Blenkinsop, C.B., C.M.G., A.M.S.

To be Brevet Colonel.

Major and Brevet Lieut.-Colonel C. M. Goodbody, C.I.E., D.S.O., I.M.S.

To be Brevet Lieutenant-Colonels.

Majors: T. G. F. Paterson, D.S.O., I.M.S.; E. A. Roberts, D.S.O., I.M.S.

To be Brevet Major.

Captains: A. G. J. MacIlwaine, C.I.E., R.A.M.C.; A. Shepherd, R.A.M.C.

Temporary Captain H. H. Raw, R.A.M.C.

THE following is the conclusion of the list published in the issue of March 1st of awards to medical officers in recognition of their "conspicuous gallantry and devotion to duty" in the field:

Military Cross.

Captain David Turnbull Richardson, R.A.M.C. (Aden.)

For conspicuous gallantry, initiative, and resource on October 22nd, 1918, when in command of an advanced dressing station, in evacuating casualties under heavy rifle fire. He has shown similar qualities on several previous occasions.

Temporary Captain (acting Major) George William Riddel, 129th Field Ambulance, R.A.M.C.

During the attack on Gouzeacourt, September 18th, 1918, he went up to the most forward aid post to organize the collection and evacuation of the wounded. Though dazed early in the action by the explosion of a shell near him, he carried on his duties untiringly through the day and night, often under heavy shell fire. His coolness and disregard of danger inspired confidence in the bearers, and it was largely owing to him that the wounded were cleared so expeditiously.

Captain Wesley McConnell Robb, C.A.M.C., attached 2nd Canadian Mounted Rifle Battalion, 1st Central Ontario Regiment.

On the Scarpe front from August 26th to 29th, 1918, shortly after zero, his advance dressing station was blown in by shell fire. Though dazed and partly buried, he immediately dug his orderly out. He then followed the battalion in the attack, organizing stretcher squads from prisoners, and evacuating serious cases with the least possible delay. He several times attended serious cases in the firing line.

Temporary Captain Henry Albert Ronn, R.A.M.C., attached 3rd Dragoon Guards.

He attended to wounded under heavy shell fire on October 3rd, 1918, near Montbrehain, and on October 9th at Honnechy. On both these occasions he set a fine example under most trying conditions.

Captain John Rowland, R.A.M.C.(S.R.). (Salonica.)

During operations against the Tassei, on the night of September 17th and 18th, 1918, he, although dangerously gassed, remained at duty and for three whole days worked incessantly rescuing our wounded, often in close proximity to the enemy's positions and under an intense fire. Despite much suffering from the effects of the gas he persisted in his efforts, and by his fine example and personal exertions was the means of saving scores of lives.

Captain Joseph Gregor Shaw, 12th Field Ambulance, C.A.M.C.

During the operations near Dury, September 2nd to 6th, 1918, he was in charge of stretcher-bearers. During the whole period he was constantly on duty. On several occasions he reconnoitred areas which were under heavy shell and machine-gun fire, dressing wounded and arranging for their evacuation in the open. In the vicinity of the windmill he came under heavy fire while attending to his duties. His work throughout was admirable, and his coolness in danger was an excellent example to his stretcher squads.

Lieutenant John Alexander Stewart, R.A.M.C.(S.R.), attached 10th Field Ambulance.

During the operations astride the Arras-Cambrai road on September 2nd and 3rd, 1918, he displayed conspicuous gallantry and unselfish devotion to duty, attending to the wounded under heavy fire with a disregard of danger that was a splendid example to all.

Temporary Captain William Joseph Edward Stuttaford, No. 2 Field Ambulance, R.A.M.C.

Near Maissemy, September 23rd and 24th, 1918, he organized and superintended the evacuation of wounded under heavy shell fire. His courage inspired confidence among his men, and his initiative and resource saved many lives.

Temporary Captain Arthur Macgregor Warwick, R.A.M.C., attached 1st Battalion, Royal Warwick Regiment.

After an attack on St. Servin's Farm on August 30th, 1918, when he had cleared his aid post of all casualties, he organized stretcher-bearers and got in without delay a large number of wounded who were lying out in front exposed to heavy shelling. He carried out similar good work the following day.

Captain (acting Major) Frank Wigglesworth, 23rd Field Ambulance, R.A.M.C.(T.F.).

On the night of September 11-12th, 1918, prior to the attack on Havrincourt, while under heavy shell fire he reconnoitred the routes of evacuation and set out his bearer posts. The next morning, during the attack, he supervised the whole evacuation of the wounded, and for the next two days he kept well forward, advancing his cars and posts as circumstances allowed, thus evacuating the wounded with the least possible delay. His disregard of danger set a fine example all round.

Captain Eric Melvyn Wyllie, No. 1 Field Ambulance, N.Z.M.C.

South of Cambrai from October 3rd to October 8th, 1918, during five days' operations, constantly exposed to enemy fire, he reconnoitred the country for the establishment of bearer relay posts and car posts. On October 4th, after establishing a car post at Mesnières he went forward under heavy fire and established a bearer relay post on the bank of the canal, afterwards going forward and supervising the evacuation of wounded from regimental aid posts.

Captain Harvey Gordon Young, D.S.O., C.A.M.C., attached 49th Battalion Canadian Infantry, Alberta Regiment.

During the operations east of Arras from August 26th to 29th, 1918, he was medical officer to the battalion, and throughout the whole operation followed up the attacking troops. Under heavy machine-gun and shell fire he attended to wounded, and organized stretcher squads of prisoners. He worked unceasingly, and it was entirely due to his personal energy and disregard of personal danger that all the wounded were evacuated before relief.

England and Wales.

Liverpool Medical Institution.

Jubilee Membership of Dr. Richard Caton.

A special meeting of the members, to which ladies were invited, was held on Thursday afternoon, February 27th, to tender the congratulations of the institution to Dr. Richard Caton on the attainment of his jubilee year of membership. The president, Mr. W. Thelwall Thomas, occupied the chair, and was supported on the platform by past-presidents of the Institution. The general secretary, Dr. W. Murray Cairns, read letters of their congratulations and regretting their inability to be present from, among others, Sir Dyce Duckworth, Bt., Professor C. S. Sherrington, F.R.S., and Major-General Sir Robert Jones.

The President reviewed rapidly the events of the past fifty years in which Dr. Richard Caton had played a conspicuous part. Coming to Liverpool at a period when the fortunes of the Liverpool Royal Infirmary School of Medicine were at a low ebb, Dr. Caton, with other well known medical men now passed away, succeeded in establishing the school on a firm basis. In 1880, owing to the exertions of the lecturers, the University College, as a constituent part of the Victoria University of Manchester, was founded, and on that there followed the present University of Liverpool, which Dr. Caton represented on the General Medical Council. When he became consulting physician to the Royal Infirmary he did not cease his interest in the advancement of learning, and in 1903 he was Lord Mayor of the city. In offering the congratulations of the members, the President expressed their sense of Dr. Caton's unfailing courtesy and amiability.

Dr. T. R. Glynn, in supporting the motion, said that Dr. Caton's achievements in medicine, in public affairs, and in archaeology were well known. He became lecturer in physiology in 1870, and retired as emeritus professor in 1892. He had imagination and invention, qualities essential for research. In civic matters Dr. Caton had rendered signal service, and was an ex-chairman of the Housing Committee. Dr. Glynn mentioned the discoveries of Dr. Caton in connexion with the temples and ritual of Asklepios, the medicine lore of the Egyptians, and Hippocrates and Cos.

Mr. Paul spoke of Dr. Caton as a friend and colleague whom he had known since 1875. When as Vice-Dean he was closely associated with Dr. Caton, then Dean of the Medical Faculty, what struck him most was Dr. Caton's patience, industry, and constant courtesy and consideration for others. Through life Dr. Caton stood out prominently as an emblem of hospitality, kindness, and sympathy. No temptation of professional rivalry or political advantage had ever succeeded in lowering his high ideals.

Dr. Macfie Campbell, who had sat on the same bench with Dr. Caton, listening to the lectures of Syme, Simpson, Hughes Bennett, and Christison, said that he then possessed the same geniality, trustworthiness, and sincerity characteristic of him to-day.

Dr. Caton, who was received with great applause, tendered his most sincere thanks for the congratulations, and extolled the great benefit that had accrued to the city in possessing the Liverpool Medical Institution. The medical history of Liverpool could be well summed up as the records of the Medical Institution. Without its fostering care the Liverpool School of Medicine would never have progressed as it had. In public health matters the Medical Institution was instrumental in providing hospital accommodation for infectious diseases. He praised the efforts of Dr. Hope, the present medical officer of health, and alluded in graceful terms to the work of the late Dr. Carter in connexion with inebriety, and the world-wide recognition of the surgical attainments of the late Hugh Owen Thomas. Speaking for himself, he associated with his membership friendships that had sweetened his life. It was when holiday making he was able to pursue his studies in archaeology, but even these were rendered more attractive by the companionship of friends animated by the same desire.

Lousiness and Scabies.

The Local Government Board for England and Wales has issued a memorandum on measures for the prevention of lousiness and itch (H.M. Stationery Office; price 1d. net) for the guidance of local authorities in giving publicity to the nature of the measures the public should take, and in making provision for preventing or curing pediculosis or scabies in schools or institutions, and securing the treatment and disinfestation of members of affected households. It is stated that the Army authorities have, in the interests of the returning soldier as well as of the civil population, made thorough arrangements both abroad and at home for cleansing, bathing, disinfestation, and the issue of clean clothes. The Cleansing of Persons Act enables any sanitary authority to provide apparatus for disinfestation of articles of apparel or bedding free of charge, and in the metropolis there is power to enforce the cleansing of verminous inmates of common lodging-houses. It is pointed out that unless efforts to control scabies and pediculosis include the examination, and, when necessary, the treatment, of each member of the affected family and the disinfestation of clothing, etc., they must be regarded as inadequate. It is wisely said that lousiness and itch should not be regarded as disorders of minor importance, but as constituting a serious menace to the health of a section of the population, especially children. The part played by lice in the spread of typhus fever, relapsing fever, and trench fever is well known.

Scotland.

Chair of Therapeutics in Edinburgh University.

When Sir Thomas Fraser resigned the chair of materia medica in the University of Edinburgh in April, 1918, the ordinance for the foundation of a chair in therapeutics distinct from that of materia medica had just been forwarded to the Privy Council Office. In May, 1918, Professor Arthur R. Cushny of the University of London was appointed as successor to Sir Thomas Fraser in the chair of materia medica, and now we understand that the University of Edinburgh will shortly consider applications for the recently established chair of therapeutics. The holder of the chair will have charge of wards in the Royal Infirmary, and he will be one of the staff of teachers of

clinical medicine. He will not, however, engage in private consulting practice. The separation of the work formerly performed by the occupant of the chair of materia medica into two parts will enable more attention to be directed to the study of pharmacology on the one hand and to the clinical aspects of therapeutics on the other, with, it is hoped, growing advantage to the undergraduates attending these classes.

MINISTRY OF HEALTH.

A meeting of the medical profession in Edinburgh and Leith on February 26th, summoned by the Division of the British Medical Association to discuss the proposed Ministry of Health, endorsed the resolution of the Royal Colleges of Physicians and Surgeons of Edinburgh, requiring that before enactment the bill should be submitted to the profession for consideration. The meeting also resolved:

That there should be a separate Ministry of Health for Scotland with direct access to Parliament.

That the Scottish Board of Health should contain not less than one-third of its members registered medical practitioners not holding any other appointment under the Ministry.

That there should be a Medical Advisory Council elected by the profession itself, to which all matters directly or indirectly affecting public health should be referred by the Board for consideration and report. It should also be competent for the Advisory Council to submit such matters of its own initiation to the Board. This Council should have power to meet jointly with any council, medical or lay, as occasion arises.

There should be representation of the dental profession on the Advisory Council.

AMATEUR PRESCRIBING.

A good instance of the danger of following amateur prescriptions is afforded by a short correspondence in the *Scotsman* of last week. Sir Frederick Milner, who is rather fond of writing to the papers, published a letter on February 24th, saying that the prescription he and others had successfully taken for influenza and chills was Calvert's phenol for internal use, No. 2, the dose being two tablespoonfuls three times a day. Mr. Rutherford Hill, secretary of the North British Branch of the Pharmaceutical Society of Great Britain, wrote at once to point out that there is no Calvert's phenol for internal use, No. 2. No. 2 is for external use, as the makers state. Some twenty-five years ago, he added, Calvert's firm recommended a mixture of phenol (16 minims), glycerin (2 fl. oz.), and water (up to 16 fl. oz.) to be taken in two tablespoonful doses for influenza. Each dose of this would contain one grain of phenol, whereas two tablespoonfuls of Calvert's No. 2 phenol would contain more than 400 grains and would be quickly followed by fatal consequences; in one case recorded in Taylor's *Medical Jurisprudence* it occurred in less than three minutes. At a meeting of the managers of the Royal Infirmary, Edinburgh, Dr. McKenzie Johnston took the opportunity of warning the public against the internal use of phenol unless prescribed by a medical authority. Even Sir Frederick Milner was a little appalled when he found out what he had done and hoped that it was obvious that he did not mean what he said.

MORE than £2,500 of the £12,000 required has been subscribed for the foundation of a chair of medicine in the University of Belgrade as a memorial of Dr. Elsie Inglis.

BARNES and CORT (*Journal of the American Medical Association*, 1918, vol. lxxi, pp. 350-352) report upon the use of oil of chenopodium in the treatment of amoebic dysentery. They found that the administration of the drug promptly relieved the clinical symptoms in many patients, and that the amoebae disappeared from the stools. A tendency to relapse, however, occurred in some cases. Whether these claims will stand the test of time seems doubtful. There is a lack of proper scientific detail in the paper, especially as regards the number of stool examinations made, and the cases were not followed up long enough to determine the percentage of relapses. Strict rest in bed, on a milk diet, will often cause amelioration of symptoms in amoebic dysentery, but that does not mean that the case is really cured. To determine a real cure the patient must be sterilized of all his amoebae, and the only way to make certain that has been accomplished is to make examinations of the stools daily for at least one month, if not two, after the cessation of treatment.

Correspondence.

THE GERMANIZATION OF THE BRITISH MEDICAL PROFESSION.

SIR,—There has in the past year been a good deal in the BRITISH MEDICAL JOURNAL about the militarization of the British medical profession—that is, converting it into a State service. The most ardent advocate is Colonel Maurice, A.A.M.S., who would model it on the R.A.M.C. organization. In this war we are fighting for our independence as a people—for our individualism, which we love more than life itself. As a people, if we have one characteristic more than another it is individualism as distinguished from collectivism.

The fact is that services—army, navy, and civil services—are necessary for their own special sphere in the machinery of the State; outside that special sphere we resent in the strongest possible terms being Germanized. Men like myself, who have done long service in a military medical service, most of which was in civil employ (which has also got its secretariat and its red tape), long for the day when we shall again be free men. Services look nice on paper—on paper you have rights and duties; secret societies also look nice on paper—they have laudable objects on paper. But what about the practice? The practice of secret societies is invariably bad and in no way in harmony with the initiation ceremony. The practice of secretariats ignores the official's rights. I was once told by a very senior official when I consulted him on a case about my rights: "My dear sir, give up the idea that you have rights; rights are put forward to look nice on paper to the innocent; you have no rights; the authorities can do what they like with you short of putting you in the family way." He expressed what would appeal to most men who have done fighting for their rights (official) as correct. Fight and lose, and you may be loved, but not respected. Fight and win against a powerful secretariat and you will be hated for the rest of your service, though you will be respected. Fight for your rights and win and you need never expect favours from the secretariat; you will get nothing which any one else wants, and you will probably spend the rest of your service in some *isle de diable*, of which every secretariat has many.

Services are only fit for third class men—the stamp of men with little brains and as little character. This class, for success in life, at once recognizes that it can only get on successfully by bowing and scraping, flunkeying to the secretariat and to the wives of secretariat officers—to influential people outside the service; sound honest work has very little to do with official success so long as the individual keeps his head above water, or, more correctly, does not go under water too often. It is disgusting to see this class of man elbow, through secretariat influence, able men aside. The type of able men—men with brains, ambition, and capacity by nature—are not adapted to succeed through the arts of the flunkey, in high life called a courtier. Such men are by nature adapted to succeed by their worth; to a secretariat worth is a brassy claim which the nonentities who manipulate secretariat figures resent. A secretariat is a strait-jacket to men of worth. This type of man tends to get into trouble with secretariats. He fights them. If he is not experienced, or has not an experienced friend at his elbow, he, if he is winning, or has a winning case well handled, is very liable to press for a verdict. If he does he may leave the service; for secretariats have memories which do not die with the individual. To forget would expose the fact that the secretariat was fallible. He should measure his opponents carefully, press his case to victory, but avoid just going so far as to demand a decision. After he has measured swords in this way a few times he will get consideration enough to be given peace, but he will be kept in some dirty job for the rest of his service. Men who can fight secretariats when occasion demands it, and who can hold their own and go their own way till the end of their service, are very rare; they are men of exceptional capacity who would command an army or rule a state.

So far I have given a rough idea of my observation of officialdom. In my opinion if the profession is militarized it will be the death knell of the greatness of British medicine. It will reduce everything to red tape formulae

and perish all initiative. The big men of such a service excite jealousy among the smaller fry. This jealousy is used by intriguers till they influence the secretariat to set the object of the jealousy aside. This is human nature; it applies not merely to the medical profession, but to the army and to all other such bodies the secretariat of which is armed with such power. Secretariats are a queer muddle. If the chief, whether civil or military, is a big man he gets able men about him. If he is a small man he takes care to have no big men on his staff lest it should get out that he was being run by his staff. Find the class of men on the staff and you can very closely measure whether the chief is an able man or not. When a fight is on with an official the chief almost always supports his staff; said to be "to maintain discipline"; hence the official has no rights.

Colonel Maurice seems to think that the R.A.M.C. organization is perfect. It may be from his point of view, but when the method in which the R.A.M.C. conducted the medical side of this war is exposed, as it will be exposed, it will be evident that the profession does not want such an organization. What use did the War Office R.A.M.C. make of the Indian Medical Service? The I.M.S. is a military service 785 strong, the regular R.A.M.C. is 1,107 strong. The I.M.S. has one of the finest bodies in the world of practical surgeons in every branch as well as practical physicians and sanitarians. They were at the disposal of the War Office. What use did the R.A.M.C. make of them? Their distinguished men were not wanted! This is the sort of thing the profession may expect from the class of men who constitute secretariats.

Colonel Maurice and men of his views are not to assume that I am a soured man such as failures in life are. I am nothing of that kind. I remember the days of the threadbare coat, when I worked as the physique of few men could allow them to work—worked for the love of work; if reward came—all right; if reward did not come I would have the reward in the form of consolation that I had at least done my duty to myself and to my fellow men. The junior members of the profession should beware of the early years in a service. It is only after five or six years that they begin to feel fettered and under the influence of any demagogue who wishes to put pressure on the weaklings who constitute secretariats.

My advice is to strain every nerve to avoid the organizing or Germanizing of the profession into a service. —I am, etc.,

HENRY SMITH, C.I.E., Lieut.-Colonel I.M.S.

Amritsur, Jan. 2nd, 1919.

THE MINISTRY OF HEALTH.

SIR,—Questions of far-reaching importance to the interests of the medical profession are now before Parliament, and it is to be hoped that members of the British Medical Association may lose no time in making their views known and felt.

The Ministry of Health Bill as presented to the House of Commons has already been shown to be capable of considerable extension, and this may be carried a good deal further if the medical profession shows a desire for it. Major Astor (Parliamentary Secretary to the Local Government Board) stated in his reply on the debate upon the second reading that the powers of the Registrar-General "are now being transferred to the new Ministry." This was not in the bill, but on the suggestion that there should be transferred to the Ministry the powers of the General Medical Council, he put forward the inconclusive argument that "this new department which is being set up will deal only with England and Wales, and the General Medical Council deals with the whole of the United Kingdom, and that is why it is not in the bill."

Having regard to the fact that new departments are promised for Ireland and Scotland, and that no objection was raised to the principle of transfer of authority from the General Medical Council, the matter would resolve itself into allocating the functions of this body to three instead of to one department. This, excepting in the case of the Council's disciplinary powers, would cause very little deviation from the conditions already existing. General registration having been accepted as coming within the scope of the new Ministry, it would appear to be natural and reasonable to suggest that the special registration of doctors, dentists, and, eventually, of nurses, should also be part of its duties. If this were the case, duly qualified persons in all these professions might look for protection and safeguards from a real live Ministry which, as matters now stand, are denied to them.

Beyond registration, the remaining functions of the General Medical Council could be disposed of quite naturally. Its disciplinary powers would fall to the judicial body to be established under the second proviso of Section 3, Subsection 1 of the bill; and, in so far as the General Medical Council exercises any control or initiative in the matter of professional education, it is suggested that greater practical benefit would arise from the appointment of inspectors of medical education under the Health Ministry. Registration, professional education, and discipline are questions which should not be excluded from the functions of the new department, and the benefits both to the profession and to the community arising from their inclusion are too obvious to require enumeration.

There may be a consensus of existing opinion against the abolition of the General Medical Council, but if it be retained the legislative anachronisms of the Medical Acts and of the Dentists Act must be recast, and made to suit the present and future conditions of professional existence. It is hoped that expressions of opinion on these points may be elicited from your readers.—I am, etc.,

London, March 3rd. POLITICUS.

ENDURANCE IN AORTIC INSUFFICIENCY.

SIR,—The interesting case of aortic insufficiency in an exceptionally vigorous old gentleman related by Dr. Muspratt in the BRITISH MEDICAL JOURNAL of February 15th, together with other recent letters on the same subject, tend rather to revive the chastened mood of some who had been taught by the new cardiology to regard mechanical valvular lesions as somewhat negligible factors in diseases of the heart.

One of the lessons of the war has been that the possessors of incompetent aortic and stenosed mitral valves cannot be relied upon to endure the stress of exertion involved in warfare. Those having such lesions among soldiers are, of course, in most cases, young. In some such, no doubt, syphilis, alone or ingrafted upon cardio-vascular lesions of rheumatic origin, precipitates failure. But in other cases the rheumatic lesion has itself been sufficient, under the strain of the soldier's life, to induce inadequacy.

Many years ago (*Medical Times and Gazette* 1873, *Clinical Medicine* 1874) the late Lord Ilkeston (Sir Walter Foster) pointed out, in discussing the effects of accidental rupture of the aortic valves, that the position and extent of these tears had an important bearing upon the prognosis of the consequent cardiac inadequacy. Such ruptures are rare, and their satisfactory diagnosis is only made *post mortem*, for ruptured "compensation" bears a close clinical likeness to traumatic lesion. But the determination of the point raised by Sir Walter Foster is nevertheless important in all cases of aortic valvular disease, whether of traumatic or nosological origin. The degenerative effects of syphilis may cause failure when there is little mechanical lesion, but aortic valvular cases fail without being syphilitic.

In the narration of all cases of aortic incompetency, therefore, which show exceptional endurance under conditions of strain, as in the case of the hardy octogenarian mentioned by Dr. Muspratt, it is particularly desirable that some indication of the degree of valvular incompetency should be given. It will, I think, be found that this is not great in most cases, which are little hampered by the possession of so undesirable a lesion, for the aortic valve is the key to the amount of left intraventricular pressure. This fact is proved very strikingly by the escape of the heart from hypertrophy in aortic aneurysm when the aortic cusps are competent, and by the hypertrophy of the left ventricle in proportion to their insufficiency under these circumstances. Such an estimation may, moreover, be made clinically with approximate accuracy without much difficulty.

Without going into any detail, the simplest method of gauging the degree of incompetency in any case of aortic valvular defect, apart from a consideration of the condition of the cardiac muscle, is the measurement of the diastolic blood pressure (which may fall to 50 or 40 mm.,

or even lower) and the acoustic evidence of the survival of the aortic second sound of the heart. Any difficulty in discriminating between the closure of the aortic and pulmonary arterial valves may be obviated by auscultating in the suprasternal fossa, where the aortic valvular closure is alone audible. The degree of hypertrophy of the heart is also easily estimated by well known clinical methods, and is proportionate to the insufficiency when other factors, such as costo-pericardial adhesions, are not added to the case. The curious, who have access to an electro-cardiograph, may also determine the presence or absence of a preponderant left or right hypertrophy, but the signs of this, even if regarded as reliable, need not be sought as a rule.

It would be interesting to learn how the exceptionally hardy old gentleman of whom Dr. Muspratt writes answers to these tests. In any case, I do not think it can be maintained, from the history even of exceptional cases, and apart from the consideration of the muscular state of the heart, that aortic valvular incompetency is other than a grave condition, and, so far as the physician is concerned, one in which he can advise other than a quiet life, when this is possible. This need not, however, be that of an invalid, but one prescribed less from a general recognition of the mechanical lesion than by an estimation of its degree in any given case, and from a knowledge of the etiology of the condition and of the general state of the bearer of the lesion.—I am, etc.,

London, W., Feb. 17th. ALEXANDER MORISON.

URETERS AND THEIR ORIFICES IN GUNSHOT WOUNDS OF THE SPINE.

SIR,—Mr. Thomson Walker, in his letter which appears in your issue of February 15th, makes a statement which cannot be allowed to pass unchallenged.

In the *Lancet* of February 3rd, 1917, Mr. Walker published an article strongly recommending early suprapubic drainage as a means of preventing ascending pyelonephritis following catheterization in cases of paraplegia due to gunshot wounds of the spine. He now complains that his advice "was, however, without effect on Colonel Fullerton and his colleagues in France"—by which I presume he means surgeons in general working with the British armies in France—and that as a result of this "the stream of paraplegics dying from catheter infection continued unabated."

This, Sir, appears to me to be a very serious accusation directed against a body of men who, whatever their faults, have not as a rule been lacking in receptiveness to new ideas, or in anxiety to adopt suggestions that appeared likely to benefit the wounded soldier.

As a matter of fact, I can, from personal knowledge, assure Mr. Thomson Walker that his article attracted considerable attention amongst the surgeons of the British armies in France, and that his authoritative statement quickly led to an extensive revival of a mode of treatment which had already had some vogue at Boulogne base in 1915.

From the time of the battle of Messines till the end of the attacks on Passchendaele Ridge, large numbers of surgeons were congregated in the casualty clearing stations of the Second and Fifth Armies. Suprapubic drainage was the routine practice of many surgeons in paraplegia for spinal injury during the whole of this period (six months) and later. Owing to the large numbers of wounded and to the impossibility of retaining them in the forward areas, the spine could only be treated by operation in exceptional cases, but my own practice and that of many colleagues was never, if it could possibly be avoided, to send the cases down without first doing suprapubic drainage. Catheterization was strictly forbidden, and was never carried out save in times of the greatest pressure, when time could not be spared for operation.

It was only at a later date when information began to be received from the base concerning the progress of these patients, that doubts arose as to whether, after all, suprapubic drainage was efficacious in avoiding urinary sepsis. Nevertheless, this operation continued to be performed, though less frequently, until the introduction of the simple and satisfactory method of emptying the bladder by expression, whereby both catheter and operation are avoided. During the heavy fighting of the great advance from August 8th onward, expression of the urine was, to my personal knowledge, used, to the exclusion of all other methods, in the casualty clearing stations at which I worked until the close of hostilities.

That Mr. Thomson Walker has not seen in England the very considerable number of cases in which suprapubi drainage was performed in the casualty clearing stations of France during 1917 is somewhat of a sad reflection for us who spent much time and labour, when both were very precious, in carrying out a method of treatment which we fondly believed would be successful in saving or prolonging the lives of those unfortunate men.

Let us hope, however, that some few at least may have arrived in England unknown to him.—I am, etc.,

FORBES FRASER,
Lieut.-Colonel R.A.M.C.,
Cologne, Feb. 27th. Consulting Surgeon, Second Army.

THE UNITY OF THE PROFESSION.

SIR,—I take strong exception to the sentiments expressed by Dr. W. Escombe in his letter appearing in the BRITISH MEDICAL JOURNAL of February 22nd. He states "the sooner the profession realizes that Dr. Addison is not working for it, and cares nothing for it, the better." I entirely refute this. I have had several interviews with Dr. Addison, and am so personally acquainted with his opinions.

If men like Dr. Escombe would only realize that the interests of the profession are also the interests of the community, instead of only thinking and "grousing" over their sectional interests, we should soon obtain a service which would be satisfactory both to the public and to the medical profession. Without this statesmanship we shall get neither.—I am, etc.,

Birmingham, Feb. 23rd. F. A. L'ESTRANGE BURGES.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THIS Fund was officially closed by the Executive Committee at their meeting on January 30th, the formal date of closure being February 10th. Since the date of the meeting the following subscriptions have been received:

	£	s.	d.
Hampshire Pharmacists' Association (per Mr. C. H. Baker, making £56 5s.)	6	5	0
Dr. Charlotte E. Warner	1	0	0
Dr. Alfred Cox (monthly)	1	1	0
Dr. Papillon	0	10	6
Dr. Leak	1	1	0

	£	s.	d.
South Australian Belgian Relief Fund (per the Agent-General for S.A.)	500	0	0
J. M.	0	10	0
Mr. D'Arcy Power ...	2	10	0
Mr. H. E. Morris	0	5	0

The following monthly subscriptions were received for January and also for February:

	£	s.	d.
Dr. E. C. Morland ...	0	10	6
Major E. R. Fothergill, R.A.M.C.	0	10	0
Dr. J. O. Musson	0	10	0
Dr. G. Grey Turner ...	1	1	0
Dr. A. W. Forrest ...	1	0	0
Sir Thos. Barlow	0	10	0
Dr. A. E. Naish	0	10	0
Dr. A. B. Stevens	1	0	0
Dr. Luffman	0	10	0

	£	s.	d.
Dr. T. L. Draper	0	10	0
Dr. F. W. Goodbody ...	1	0	0
Dr. A. Graham	1	1	0
Dr. W. Stewart	0	10	0
Dr. H. Whitehouse ...	0	10	0
Dr. Vincent Tighe ...	0	10	0
Dr. W. E. Good	0	10	0
Dr. H. Caiger	0	10	6
Dr. Hyla Greves	0	10	0

It will be seen that the Fund benefits by generous monthly subscriptions for January and February, and has also received from the South Australian Belgian Relief Fund, through the Agent-General for South Australia, a munificent donation of £500. In view of the terms of the letter from Dr. V. Pechère, noted on February 8th, the Fund was closed, but these handsome augmentations are none the less extremely gratifying to the Executive Committee, which knows full well in how many directions the money is still urgently needed. Dr. Pechère, as President of the Comité National de Secours et d'Alimentation (Aide et Protection aux Médecins et Pharmaciens Belges Sinistrés), when deprecating the sending of further subscriptions, called attention to the fact that his society had throughout practised the severest economy in order to keep funds in reserve, inasmuch as grave necessity would continue for some time. The Fund will still be able to do a little more to decrease the toll of misery.

ACCORDING to the *Medicina Ibera* of Madrid two hundred medical practitioners died during the epidemic of influenza in Spain last year.

Obituary.

MAJOR H. G. GIBSON, R.A.M.C.,

Assistant Adviser in Pathology, G.H.Q., France.

IN a brief note published in the JOURNAL of last week (p. 260) we recorded the death of Major Howard Graeme Gibson, R.A.M.C., which occurred from influenza while on active service in France.

We are indebted to Colonel S. L. CUMMINS, A.M.S., Adviser in Pathology, B.E.F., for the following tribute to this distinguished officer:

As his commanding officer at the time of his death and as a close personal friend I feel constrained to record, even briefly, an appreciation of one whose ability and energy had already made valuable contributions to medical knowledge and who seemed certain to be destined to a brilliant career in the corps. He was born in 1883 and received his medical education at Guy's Hospital. He entered the Royal Army Medical Corps on January 28th, 1907, being promoted captain on July 20th, 1910, and brevet major January 1st, 1918.

My first personal contact with him was when, early in the spring of 1914, he formed one of the specialist class in bacteriology at the promotion course at the Royal Army Medical College. Gibson entered into the work of the laboratory with enthusiasm. It was a pleasure to have in the class a man with such keenness and avidity for work. From the very beginning he stood out as the possessor of exceptional ability, and the favourable opinion which I had formed of him was justified when, at the end of the course, he made the highest marks in the specialist examination, and, by his success in other subjects as well as bacteriology, succeeded in qualifying for a year's acceleration of promotion.

A few months later the outbreak of war swept Gibson, like so many others, away from scientific work to take an active part in the great world drama. He joined the 12th Royal Lancers, and with them proceeded at once to the front. The duties of a regimental medical officer with cavalry during the first phases of the war put the highest strain on initiative, endurance, and courage. This test Gibson met with his usual cheery energy and zeal. Throughout the retreat, throughout the advance, during the battles of the Marne and of the Aisne, and later, when the British Expeditionary Force was rapidly and secretly moved north to defend the Channel Ports, he shared with the regiment its trials, hardships, dangers, and glories. Then, just when open warfare was changing to the war of trenches, and when the cavalry was helping, dismounted, to eke our numerically weak infantry, Gibson was severely injured by a shell burst, and was sent home to England, where many months of hospital treatment were necessary before he could resume military duty.

This injury and disability, so galling at the time to one whose whole soul was with the army, proved a blessing in disguise, for it led to his resumption of the bacteriological work for which he was so well qualified. Being quite unfit to resume active duty at the front, Gibson was now posted to the Vaccine Department of the Royal Army Medical College. Here, working under Lieut.-Colonel D. Harvey, he had full scope for the application of his special knowledge. Although the claims of the Vaccine Department made necessary long hours of routine work, still, encouraged and aided by Harvey, he found time to devote himself to research on protection against bacillary dysentery. The result was a brilliant piece of work communicated to the *Journal of the Royal Army Medical Corps* (June, 1917); it culminated in the production of Gibson's antidysenteric sero-vaccine. The severe reactions following the inoculation of unaltered dysentery bacilli had for the most part prevented the use of antidysenteric vaccines. Gibson, recognizing the danger that the sensitization of bacilli by the homologous antiserum might, while eliminating the severe reaction, eliminate also the value of the emulsion as antigen, conceived the ingenious idea of removing from the serum, by absorption, all its antibacterial "immune bodies" while retaining the antiendotoxic substances. Such a serum injected simultaneously with the appropriate dose of killed dysentery bacilli might be expected to prevent any severe local reaction while still leaving the bacteria uninjured and capable of evoking in the body the production of agglutinins, opsonins, and other antibacterial immune substances. Experiments on animals proved this conception to be correct, and the new principle was soon applied in practice, large supplies of the sero-vaccine being manufactured and sent abroad. While it is still too early to put forward final claims for the value of this sero-vaccine, all the reports received have so far been favourable, and there is every reason to hope that many lives will be saved by this means in the future.

In November, 1917, Gibson, now greatly improved in health, was passed "fit" for service in France, and joined Sir William Leishman as assistant adviser in pathology at head quarters. Here he threw himself with his usual ardour into statistical work connected with the effects of T.A.B. inoculation and the use of antitetanic serum. His neat and thorough records are before me as I write, and will constitute a valuable source of reference in the future. When, in April, 1918, I succeeded Sir William Leishman as adviser in pathology, my task was rendered easy by the fact that Gibson, who remained on as my assistant, had at his fingers' ends every fact connected with the office records and every detail of the work in hand. Then came the autumn epidemic of influenza, with its high death-rate and its many unsolved problems. Research was a matter of supreme necessity, and the number of men qualified to execute such work, and at the same time actually available for employment, was very small. I had decided that a research team was needed at once. It seemed waste to keep such a man as Gibson occupied with office records when knowledge, enthusiasm, and technical skill were so badly wanted. He welcomed my suggestion with the greatest delight, and I was able to include him as the senior officer of the team. His colleagues were Major F. B. Bowman, C.A.M.C., and Captain J. J. Connor, A.A.M.C., with whom was associated for clinical work Major C. E. Sundell, R.A.M.C. Helped generously by the provision of experimental animals through the Medical Research Committee, these officers were successful in transmitting the disease to monkeys and other animals by the inoculation of filtrates of infected material,[1] thus confirming the work of C. Nicolle and Lebailly. They went further and, employing the "Noguchi" method, were successful in obtaining cultures of a very minute filter-passing coccus which reproduces, on inoculation into animals, the symptoms of the disease. This work, carried out independently, has been completely confirmed by the publication by Sir J. Rose Bradford of similar observations made by Captain J. A. Wilson, R.A.M.C. At the very moment of success, when the work of months had at last reached its final stage, Major Gibson, who had been putting in long hours with his cultures in the laboratory, himself developed the disease in its severest form. Those who best knew him will appreciate what the army and the corps have lost through his untimely death. He was a man who seemed destined to a career of distinguished success and utility. Lives such as his add fresh laurels to the splendid traditions of the Royal Army Medical Corps.

Major-General Sir WILLIAM LEISHMAN, K.C.M.G., C.B., F.R.S., K.H.P., writes: To the above appreciation of the late Major H. G. Gibson by Colonel Cummins, to every word of which I subscribe, I should like to add a few lines.

Sudden death and the cutting short of what promised to be a brilliant career has, alas! been all too frequent during recent years, but the poignancy of sorrow and regret for relatives and friends remains as sharp as ever at each fresh loss. Of the many friends and comrades whose lives have been given for their country during the war there are none whom I shall miss more acutely than Major Gibson. It was indeed an irony of fate that he should have met his death at the very moment when his devoted investigations into the etiology of the disease which killed him appeared likely to be crowned with a success which would have brought him well-deserved distinction.

No man had ever a better or more loyal colleague to work with, and in the months in which we were associated in France I not only formed the highest opinion of his work and judgement, but also of his upright and sterling character. No one could have lived long in close association with him without realizing the rare qualities of his nature and conceiving for him a deep and genuine affection. In illustration of this, I may, perhaps, quote a

[1] BRITISH MEDICAL JOURNAL, December 14th, 1918, p. 645.

sentence from a letter received from one of the colleagues associated with him in his last work. "He was one of the finest characters I have ever met, and never in the six months that I knew him did I hear him say anything against any one."

One would like to think that it may, perhaps, be some small consolation to his widow and family to know that his brother officers will not readily forget their lost friend, and that a large number of them realize very clearly the great loss which the corps has suffered in the early passing of a man whose work had already stamped him as destined to rise high in the line to which he had devoted himself so whole-heartedly.

WILLIAM STEPHENSON, M.D.EDIN., LL.D.ABERD.,

Emeritus Professor of Midwifery, University of Aberdeen.

PROFESSOR WILLIAM STEPHENSON died on February 24th in his 82nd year. He was born in Edinburgh on July 2nd, 1837, was educated at the High School and University, and graduated M.D. in 1861. He began practice in Edinburgh, and was physician to the Royal Hospital for Sick Children there. In 1875 he was appointed professor of midwifery in the University of Aberdeen, became physician to the Maternity Hospital there, and also gynaecologist to the Aberdeen Royal Infirmary. He was vice-president of the Obstetrical Society of London in 1887–89, and president of the Obstetric Section of the British Medical Association at the annual meeting at Swansea in 1903. In 1912 he resigned his chair, and was appointed Emeritus professor, and in the following year received the honorary degree of LL.D. from the university. In 1914, during the meetinfi of the British Medical Association in Aberdeen, Professor Stephenson was presented by the university with his portrait, which now hangs in the court-room at Marischal College. Professor Stephenson, who was twice married, leaves a widow and a family, by his first marriage, of two sons and three daughters; the younger son joined the 4th Gordon Highlanders, and was killed in July, 1916. The other is Dr. R. B. T. Stephenson of Southsea.

We are indebted to Professor R. G. MCKERRON, his successor in the chair, for the following brief tribute:

We will miss his genial presence in this district. He was keenly interested in everything relating to the profession and more especially in its social relations. He rarely, if ever, missed a social gathering of medical men, and his presence was always welcome. He published a number of valuable papers—the earlier chiefly on diseases of children, the later all on obstetrical subjects. There were few, if any, obstetricians of his generation who devoted more time or study to obstetrical problems, and more particularly to that aspect of obstetrics which he made peculiarly his own—the mechanism of labour. His method was the soundest and best I know. His teaching was essentially practical, and its value, not always appreciated at the time, was fully realized by his students later.

The Services.

R.A.M.C. (REGULAR) UNIFORM OF OFFICERS.

WE understand that some alarm has been caused to regular officers by a circular recently issued making inquiries with regard to change of uniform. We are now able to state that an Army Council Instruction has been issued that no officer is at present to purchase any uniform other than field service; the whole question is now under consideration.

Universities and Colleges.

UNIVERSITY OF EDINBURGH.

AT a meeting of the University Court on February 17th Mr. George Barger, M.A., D.Sc., was appointed to the chair of chemistry in relation to medicine. He was educated in Holland and at University College, London, and King's College, Cambridge. From 1901 to 1903 he was demonstrator of botany at the University of Brussels; afterwards he was chemist to the Wellcome Physiological Research Laboratory, and since 1914 has been a member of the staff of the department of biochemistry and pharmacology of the Medical Research Committee, where he has been concerned largely with confidential work for the Ministry of Munitions.

The courses in the first year subjects in medicine at the University of Stellenbosch were recognized as qualifying for the first professional examination in medicine.

Dr. John Guy was recognized as an extra-academical lecturer on tuberculosis.

Medical News.

DR. P. L. GIUSEPPI has been elected the representative of Felixstowe (N.W. Ward) on the Suffolk County Council.

THE Lumleian Lectures before the Medical Society of London have been postponed, owing to unavoidable delay in the arrival of Colonel W. H. Willcox, C.B., C.M.G., in England.

DR. ADDISON, President of the Local Government Board, has appointed Miss Janet Mary Campbell, M.D., M.S., to be a Medical Officer of the Board in special charge of the work of the Board in respect of maternity and child welfare.

THE War Emergency Fund of the Royal Medical Benevolent Fund has recently received donations of fifty guineas each from the Royal College of Physicians, London, and the Royal College of Surgeons, England.

CAPTAIN W. I. CUMBERLIDGE, R.A.M.C.(T.F.),F.R.C.S., who has been honorary assistant surgeon to the Leicester Royal Infirmary since 1911, has recently returned from service in France, and has been appointed honorary surgeon to the infirmary.

AT the matriculation examination of the University of London in January 120 candidates passed in the first division and 638 in the second. Five candidates passed at the examination held in France, one of them in the first division.

LIEUT.-GENERAL SIR CHARLES H. BURTCHAELL, K.C.B., Director-General of the Army Medical Service in France, has received the honorary degree of LL.D. of the University of Dublin, in which he graduated M.B., B.Ch. in 1889. He has also received the honorary Fellowship of the Royal College of Surgeons in Ireland.

DR. LEONARD HILL, F.R.S., will deliver a lecture on atmospheric conditions which affect health, before the Royal Meteorological Society on Wednesday, March 19th, in the lecture room of the Geological Society, Burlington House, Piccadilly. The chair will be taken by Sir Napier Shaw, F.R.S., at 5 p.m., and visitors will be welcomed.

DR. FRANCIS ARTHUR BAINBRIDGE, Professor of Physiology in the University of London, Dr. George Barger, whose appointment to the chair of chemistry in relation to medicine is mentioned on this page, and Dr. Thomas B. Wood, Professor of Agriculture, Cambridge University, are among the fifteen candidates selected by the council of the Royal Society for election into the society.

THE British Psychological Society has resolved that persons interested (instead of, as heretofore, engaged) in the various branches of psychology shall be eligible for membership. It was also decided to institute three special sections of the society, devoted to the educational, industrial, and medical aspects or psychology respectively. Further particulars may be obtained from the Honorary Secretary, the Psychological Laboratory, University College, W.C.1.

THE British Science Guild has been encouraged by the success which attended its exhibition at King's College last summer and the more recent exhibition at Manchester to organize a British Scientific Products Exhibition for the display of new appliances and devices. The exhibition will be held in July at the Central Hall, Westminster. There will be eleven sections, among them one for medicine and surgery. The organizing secretary is Mr. F. S. Spiers, 82, Victoria Street, Westminster, S.W.1.

MAJOR F. G. BUSHNELL, R.A.M.C.(T.F.), has been demobilized after four years' active service, chiefly in France and Salonica, and has resumed duty as tuberculosis officer to the Plymouth Borough Council. Dr. Bushnell was among the earliest advocates of the establishment of a Ministry of Health, having read a paper on the subject at the Royal Sanitary Institute Congress in 1903, and also at the annual meeting of the British Medical Association in 1906.

SIR EDWIN CORNWALL has been succeeded as chairman of the National Health Insurance Joint Committee by Major the Hon. Waldorf Astor, M.P., chairman of the Medical Research Committee, who will continue to act as Parliamentary Secretary to the Local Government Board. Major Astor was chairman of the Departmental Committee on Tuberculosis in 1913.

THE annual public conference of the Faculty of Insurance will be held in the Central Hall, Westminster, on

April 4th. The Minister of Pensions, Sir L. Worthington Evans, M.P., will open a discussion on the training and treatment of disabled men. A discussion on medical research and the state will be opened by Sir Walter Fletcher, F.R.S., who will be followed by Major-General Sir William Leishman, F.R.S. A discussion on the necessity for an increase in national insurance benefits will be opened by Mr. J. H. Thomas, M.P., and continued by Mr. John Hodge, M.P. Further information can be obtained from the Secretary of the Faculty, 3 and 4, Sicilian House, Southampton Row, W.C.

The Royal Sanitary Institute is holding a conference on March 13th, 14th, and 15th, at its house, 90, Buckingham Palace Road, on post-war developments relating to public health. Discussions have been arranged: On city hygiene in relation to employment, to be introduced by Dr. W. J. Howarth (M.O.H. City of London); on housing for city clerks and similar workers, by Sir Henry Tanner, C.B., F.R.I.B.A.; on the public health aspect of tuberculosis, by Dr. N. D. Bardswell; on public health propaganda and social work, by Professor H. R. Kenwood, C.M.G.; and on welfare work in factories, by Dr. E. L. Collis, director of welfare and health, Ministry of Munitions. There will also be a discussion on child welfare work, under the presidency of Mrs. Lloyd George, introduced by Mrs. Flora Shepherd, M.B.

According to the report on the work of the Central Midwives Board for the year ended March 31st, 1918 (Cmd. 17, price 1d.), the Midwives Roll at that date contained the names of 42,949 women, a net increase for the year of 1,204. There are 137 institutions in England and Wales at which midwives may be trained; of these, 69 are Poor Law institutions. In addition to training institutions, 73 registered medical practitioners were approved as lecturers and 92 practising midwives as teachers. Of 1,895 candidates who completed their examination 1,548 passed; the percentage of failure fell from 20.7 to 18.3. Of 76 midwives cited before the Board to answer charges of malpractice, negligence, or misconduct, the names of 47 were removed from the roll. The Board has expressed its general approval of the proposals for a state-aided midwifery service in England and Wales formulated by the Association for Promoting the Training and Supply of Midwives.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* British Medical Journal *alone unless the contrary be stated.*

Correspondents who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

Authors desiring reprints of their articles published in the British Medical Journal are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

In order to avoid delay, it is particularly requested that ALL letters on the editorial business of the Journal be addressed to the Editor at the Office of the Journal.

The postal address of the British Medical Association and British Medical Journal is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the British Medical Journal, *Aitiology, Westrand, London*; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

LETTERS, NOTES, ETC.

The Notification of Bronchopneumonia.

Dr. T. L. Bunting (Newcastle-on-Tyne) writes: The making of pneumonia a notifiable disease raises one difficulty which is not dealt with in Sir Arthur Newsholme's explanatory pamphlet. It is a common clinical experience to see a child who at first presents only symptoms of bronchitis but who a few days later shows definitely one or more patches of consolidation. It is also common, in a family of young children of whom one has bronchopneumonia, to find that several of the others have distinct bronchitis but no discoverable consolidation. On clinical grounds, therefore, there is good reason for supposing that many, perhaps all, cases of bronchitis in children are identical with one or other of the conditions known as bronchopneumonia. If this be the case, then it must be necessary to notify all cases of bronchitis in children; for whether the object of notification be a study of incidence, or the prevention of spread, it should obviously include all cases due to the same cause, and not merely those which attain a certain severity. Indeed, the slighter cases being, in virtue of their slightness, the probable carriers of infection are, from a prophylactic point of view, the more important. Possibly the bacteriologists may, even now, be able to answer this question; or they may help by arranging to examine material from our very numerous cases, though in this there are obvious difficulties due to the presence of some form of pneumococcus in many healthy mouths and the difficulty of getting pulmonary secretion from most young children. In the meantime, on clinical evidence, it would seem that even cases without consolidation should be notified.

The Prophylaxis of Venereal Disease.

Mr. C. F. Marshall (London, W.) writes: The accumulated evidence in favour of the adoption of prophylactic measures against venereal infection, supported by Sir James Barrett in his article in the Journal of February 1st, by Professor Adami in his address before the Royal Institute of Public Health on January 8th, by your correspondent in the Journal of February 8th, and by others, is overwhelming. In the absence of preventive inoculation, personal prophylaxis, although by no means infallible, is the only method likely to attain any considerable degree of success in diminishing the incidence of venereal disease. At the present time the adoption of these measures, not only by demobilized soldiers but also by the army of occupation, is important.

The Value of Present-day Practices.

We are told that it is desirable to utter a word of caution with regard to the present value of practices. The position at present differs from that which prevailed before the war, and careful investigation is essential to arrive at the value of any practice. Owing to various conditions due to the war and to the recent epidemics of influenza, the basis of last year's income may not represent the normal value. Intending purchasers will do well to consult old established agents who have a reputation to maintain, and can be relied upon to advise, after investigation, as to the proper value of a practice.

Post-Graduate Study.

Captain Chas. J. Hill Aitken, M.D., R.A.M.C., writes: By using model eyes, ears, and throats, the country practitioner can carry on post-graduate study. Finding myself far from the eye specialist I some years ago in South Africa got a model eye and an atlas of ophthalmoscopy. In a very little time I was able to tackle refractions. One case was of particular interest: Following an attack of influenza an up-country farmer became "blind." On his way to a port for a voyage to England, when he called to see me, I proved to his satisfaction that a + cylinder was all that he needed to cure his "blindness." Another case, in which my atlas enabled me to give a diagnosis, was an old man who had been given two years to live, as he was told he was suffering from "albuminuric retinitis." I diagnosed senile disease of the macula and told him to cheer up. He lived for six years and then died of acute bronchitis. It is possible also to get model bladders for practising cystoscopy.

An Earlier German Revolution.

On January 5th the American Friends of German Democracy gave a dinner to Dr. Abraham Jacobi, who is honorary president of the association. Dr. Jacobi, who is nearly 90 years of age, took part in the German revolution of 1848, and he left his native country after suffering a term of imprisonment. Dr. S. Adolphus Knopf delivered an address in *vers libres*, in which he reviewed the career of the distinguished guest. After speaking of his world-wide fame as a healer and teacher, and his work as "the little children's saviour," Dr. Knopf referred to the endeavours made by the powers that drove him across the sea to induce him to return to Germany. They offered to make him "Herr Geheimrat," "Excellenz," etc., but he declined the honour. The poet concluded with a prayer that Providence may keep Dr. Jacobi safe to see his dream of seventy years come true, "A Germany redeemed at last and worthy to be free."

The following appointments of certifying factory surgeons are vacant: Bentham (Yorks), Brynamman (Carmarthen), Denby Dale (Yorks), Martock (Somerset), Perranporth (Cornwall).

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	6	0
Each additional line	0	0	9
Whole single column	4	0	0
Whole page	12	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

Note.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.